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ANNUAL MEETING
A. D. A.
AUGUST 4-8, 1947

● The first full scientific meeting of the Association since 1941 will be held August 4-8 in Boston. A complete program of scientific essays, clinics, exhibits and motion pictures is being developed.

● All housing arrangements are to be made through the Housing Bureau of the Boston Chamber of Commerce. Reservations are now being accepted.

● On pages A-22 and A-23 of this issue of The Journal, a detailed statement of the housing program appears. A coupon to be used for requesting reservations also is provided.

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THE Journal OF THE AMERICAN DENTAL ASSOCIATION

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PERIODONTAL CONDITIONS: ETIOLOGIC FACTORS IN MANAGEMENT

G. R. Lundquist, M.S., D.D.S., Chicago

THE investing tissues of teeth have a peculiar histologic and physical character and form suited to functional use of the teeth. These tissues are subject to diseases which are unlike those of other tissues of the body. This fact, together with the manipulations required in treatment, has made dentistry a highly specialized professional field.

Two principal groups of disease processes tend to involve the investing tissues of teeth. The first group, which will be discussed in this article, concerns diseases of the gingivae. These may involve the periodontal membrane and adjoining bone and cementum and result in a periodontal pocket (pyorrhea). The second group is related particularly to diseases of the dental pulp and their sequelae.

Etiologic Factors

The different diseases of the gingivae and the investing tissues of the teeth should be considered separately as to both cause and treatment. Many gingival lesions are associated with systemic disease and are, therefore, joint medical and dental problems. For example, gingivitis which exhibits tiny polyp-like growths of granulation tissue protruding from the gingival crevices, especially if associated with an acetone breath, should cause the diagnostician to suspect diabetes. Dental treatments should be predicated on the progress that occurs under proper medical management.

In gingival lesions associated with mouth breathing, an active inflammatory reaction characterized by edematous swelling confined to the labial gingivae of the anterior teeth often is noted (Fig. 1). Extravascular cellular elements and fluids are expressed in this lush type of overgrowth. By contrast, the gingivae of the bicuspids and molars, which receive the stimulation of functional occlusion, are healthy. As a rule, there is an accumulation of some debris and calcareous deposits in the labial crevices; usually this is not sufficient in amount to explain the extensive gingival involvement. Correction of the mouth breathing, perhaps by nasal operation, together with mouth

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Read at the eighty-first midwinter meeting of the Chicago Dental Society, Chicago, February 13, 1946.

Fig. 1.—Front and side views of edematous hyperplasia confined to labial gingivae of nonfunctional anterior teeth

hygiene and interdental massage, usually will result in cure.

In children's mouths there is often little more than a detachment of soft tissues from the crowns of the teeth accompanied by substantial overgrowth of tissue, which is at first lymphedematous in character and later fibrotic (Fig. 2). Such conditions develop slowly and are not the result of a single inflammatory reaction. The overgrowth is of a normal type of tissue and is induced when extravascular cells and fluids, ordinarily removed by the tissues, are left *in situ*. Capillary lymphatic drainage is rather sluggish; hence, after fibrosis develops, surgical excision is the best approach.

Often the pressure produced in centric closure of the mouth in class 2 cases (Angle's classification) is an important factor (Fig. 3, left). Accumulated extravascular cellular elements and fluids are expressed in this lush type of overgrowth. Reduction of the leverages while the swelling contains a lush fluid with lymphedema is an effective procedure in preventing fibrosis (Fig. 1).[1] Cleanliness and massage, which are effective aids in forestalling the development of fibrotic hyperplasia, are absolutely necessary to prevent hyperplastic overgrowth of the gingivae when dilantin sodium is administered (Fig. 2, right).

1. Lundquist, G. R., Connective Tissue Changes Associated with Variable Occlusal Stresses. *J.A.D.A.* 24:1577 (October) 1937.

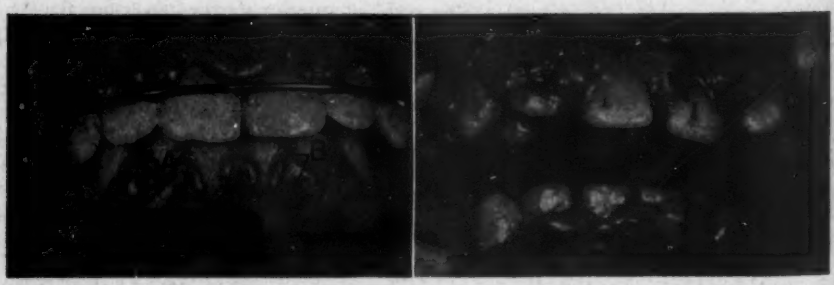

Fig. 2.—Hyperplastic overgrowth. Left: A, edematous hyperplasia; B, fibrosis. Right: Complete fibrosis

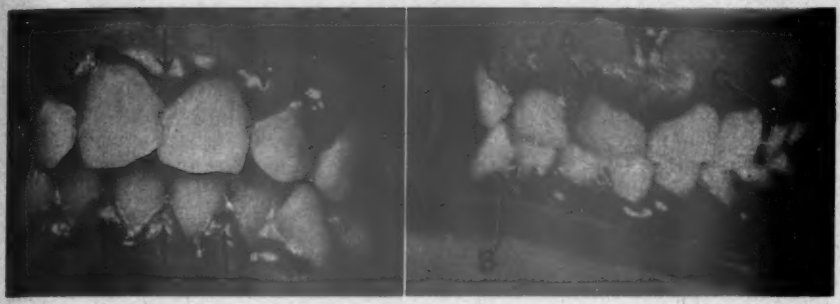

Fig. 3.—Left: Edematous hyperplasia. Compare these functional teeth with nonfunctional anterior teeth in Figure 1. Right: Myelogenic leukemia. A, hyperplastic overgrowth, hemorrhagic phase; B, erosive ulcer; C, proliferating granulation tissue

Other hyperplasias, also predominantly inflammatory, are lush, soft, fluid-containing overgrowths which vary in color from deep red to pale blue. On compression pitting often is evident. These overgrowths are painful and usually yield an exudate containing blood, serum or pus. The condition usually is associated with a neglected mouth and should be fully investigated. As a rule, from fifteen to twenty varieties of bacteria inhabit the mouth at all times. The effect of such environment too often obscures underlying systemic disturbances. The first line of approach is, therefore, cleanliness and massage unless a blood dyscrasia is suspected.

In hyperplasia, such as is associated with leukemia, for example, the gingivae, although swollen and pale, may have the appearance of soft granulations. The teeth may be loose as in scurvy, and the accumulated debris may produce a fetid odor. The mucous membranes of the mouth and throat may be red (Fig. 3, right). Granulations extruding from adjoining tissues, such as in the nose, add to the suspicion. Often such conditions have been improperly diagnosed as Vincent's infection because of a superimposed erosive ulcer or two. Oxidizing agents obviously aggravate rather than improve such a condition. Hence, an analysis of the blood, including a differential count, is indicated before treatment is undertaken.

Little can be done to check the gingival condition associated with leukemia except

Fig. 4.—Left: Purpuric gingivitis showing spontaneous hemorrhagic regions (courtesy of Dr. M. K. Hine, Indianapolis). Right: Pernicious anemia. Note calculus, dirt, debris and anemic appearance of gingivae (courtesy of Dr. M. K. Hine, Indianapolis)

to keep the mouth clean by application of a bland wash, such as physiologic salt solution, by use of a rubber bulb syringe. This irrigates interseptal spaces and gingival crevices in lieu of successful medical management of the leukemia.

An analysis of the blood should also be made in such conditions as purpura in which spontaneous bleeding from the gingivae, with little or no accompanying irritation, occurs (Fig. 4, left). In leukemia the white cell count is increased; in purpuric conditions the blood platelet count is low. These examples of blood dyscrasia are classical, but others associated with disarrangement of red blood cells, such as pernicious anemia, are more readily overlooked (Fig. 4, right).

It should be kept in mind that lush inflammatory swellings that involve the gingivae and are related to a vitamin C deficiency also occur in unclean mouths (Fig. 5, left). A dietary history and determination of vitamin C of the blood by Farmer's method will establish control relationship. The impregnation of the gingivae in dirty mouths with metallic salts of such metals as mercury and bismuth occurs because of a pre-existing lymphatic block. These cases represent specific types of gingivitis which yield in vitamin C deficiency to cleanliness and the addition of vitamin C to the diet and in poisoning to cleanliness plus elimination of the metallic salt.

Systemic management may result in definite amelioration of marginal gingivitis, if treatment of dietary deficiency, metallic poisoning, blood dyscrasia, endocrine disturbances and so forth is included. In such cases, the lesion is diffuse in that the gingivae and the underlying connective tissues of many or all of the teeth are uniformly involved as in gingivitis associated with pregnancy (Fig. 5, right). In general, such involvement is classed as "horizontal," whereas the isolated deep pockets are called the "vertical" type. Such a classification is unfortunate in that the irritating factor is, no doubt, mechanical, chemical, bacterial or physical in nature. This, together with the fact that the tooth is constantly erupting under function, accounts for the development of a gingival crevice or crevices in both these groups. If the irritant is long continued in a particular region in which there is excessive occlusal stress, the detachments will be deeper (vertical) here than elsewhere (Fig. 6, right). Hence, we are probably not viewing a difference of kind but possibly of time or degree or both.

These examples should be sufficient to show that the gingival lesion does not necessarily terminate when the medical aspect of the problem has been recognized and, if possible, corrected. The dentist is confronted then with a gingival crevice or a periodontal pocket. Such a

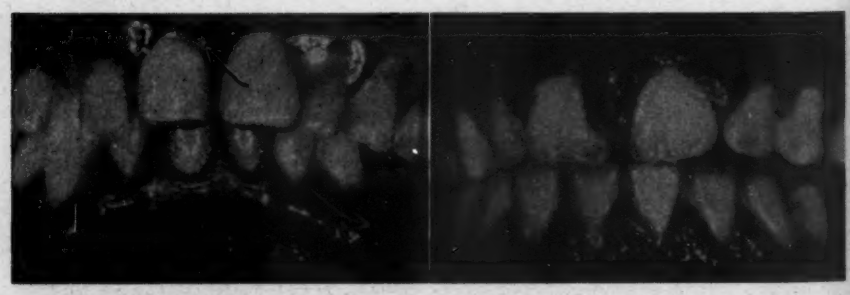

Fig. 5.—Left: Gingivitis associated with vitamin C deficiency. Hemorrhagic regions not unlike those in Figure 4, left. Right: Gingivitis associated with pregnancy, showing lush, semifluid, granulation tissue type of overgrowth

pocket consists of two surfaces, the contaminated cementum of the root of the tooth and the soft tissue with its incomplete epithelial cover. Successful management of the condition is dependent on elimination of either the hard side (tooth) or the soft tissue side of the periodontal pocket.

If the tooth is to be salvaged, consideration of the principles of inflammation is necessary.[2] Inflammation may be defined as a physiologic reaction to an irritant. Then it becomes necessary to consider the tooth as a more or less passive factor, since the reaction occurs almost wholly in the investing tissues. Contamination of the cementum acts as an irritant to the adjoining tissues. The content of the crevice or pocket does likewise. Such factors probably operate as toxic irritants rather than as infective agents.

On the other hand, the tooth as it occludes with the one in the opposing arch may be subjected to excessive occlusal force because of uneven wear associated with projecting wedgelike cusps or tooth position which the supporting tissues cannot adequately sustain.

In the former case the dentist is confronted with dirt, debris, bacterial and chemical irritants and a constant slight trauma of the soft tissues as they are buffeted about in mastication, with attendant lymphatic block (Fig. 6, left). In the latter case, the trauma is transmitted to the supporting tissues by improper functional occlusion of the teeth (Fig. 3, left). This aseptic injury, which may be severe enough to produce necrosis, usually is not complicated by infection or toxic irritation; hence, repair occurs when excessive leverages are reduced.

Patients with improper functional occlusion of the teeth are largely free from the abundant subgingival calculous deposits so prevalent in neglected mouths. The gingivitis often is expressed as a septal bulge, hemorrhagic on occasion, but usually it is not as lush and soft as that found in neglected mouths (Fig. 6, left). The more freely exudative character of these conditions, of course, contributes to the formation of calculus. Nature uses but one pattern in reacting to irritation in the oral cavity; that is, classic inflammation, capillary leaks of cellular and fluid elements, plus dilatation and deformation of the capillaries with the accompanying lymphatic block.[2]

Lack of functional use of teeth in a neglected mouth produces the same reaction (Fig. 1, left) that overstress does (Fig. 3, left). These factors should be considered when cause and effect re-

2. Lundquist, G. R., Periodontal Involvement and Its Management. *J.A.D.A.* 32:298 (March 1) 1945.

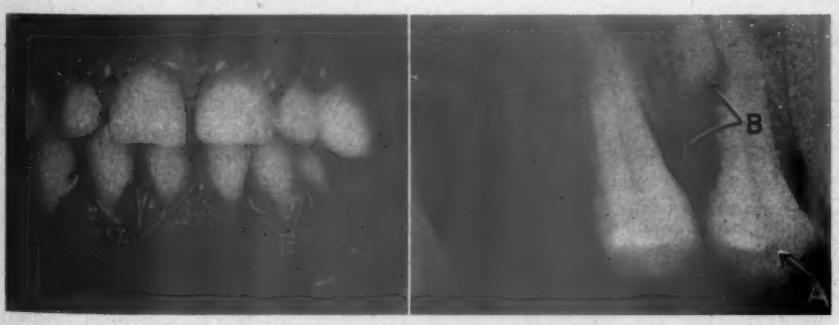

Fig. 6.—Left: Chronic periodontitis, freely exudative type: A, abundant calculus; B, edematous hyperplasia. Right: Direction of force (A) with attendant resorption of bone (B)

Fig. 7.—Labiolingual section of upper central incisor showing resorption of bone in pressure regions (A). Little or no rebuilding of bone in traction regions (B), resulting in increased width of periodontal membrane space and a fairly mobile tooth. C, fulcrum or center of rotation. Arrow indicates direction of force

lationships are being studied for diagnostic purposes.

As the pockets become deeper in neglected mouths, calculus with debris accumulates; in time the teeth may become freely mobile. In such cases functional occlusion cannot take place, so the tooth transmits to the investing tissue the additional irritation resulting from excessive stress. The lymphatic block in the supporting tissues is continued, and the condition becomes extremely chronic. Mouths, under such conditions, are uniformly involved (Fig. 6, left).

On the other hand, pockets also may become deeper in comparatively clean mouths (Fig. 3, left). In the case of a so-called centric bite lock as a result of the extensive overbite of the upper anterior teeth, more or less of a hinged joint action must be employed by the mandible in closing (Fig. 7). The lateral ranges of movement are possible to a limited degree, but protrusive movement, if accomplished, is done with considerable strain on the upper and lower anterior teeth. Therefore, since the jaws remain in a centric position most of the time when the teeth are in occlusion and only limited lateral excursive movement is possible, there is pressure with attendant resorption of bone (Fig. 6, right). Because of the limited mandibular range, the facets worn on the teeth may be marked and the cusps sharp and long; consequently, when the teeth are in closed bite relationship, they tend to wedge and separate the occluding teeth in the opposite arch. This results in resorption of bone on the side opposite that on which force is applied. The pocket becomes deeper on the mesial and distal surfaces of the teeth involved. This is especially true in the bicuspid and molar regions, and, when centric and eccentric bite closure is attempted, a forward movement of the mandible first is necessary to clear cusp peaks.

The most significant factor is that most of the damage to the supporting structures of teeth is not necessarily a result of mastication. The periods of tooth contact while food is being chewed are of short duration, and a ready release from tissue tension occurs as the patient repeatedly opens and closes the mouth.

High tensioned or so-called successful persons who are under constant pressure have little or no time for keeping the mandible in its normal rest position out of occlusion. They tend to keep the teeth closed under pressure while concentrating. Such a centric bite lock becomes a conditioned reflex because, so far as na-

ture is concerned, this is a satisfying position. It is possible, because of the sharp, long inclined planes of the cusps of these teeth, to close the mandible with little effort. The resultant force, which may be the equivalent of a continuous one, more readily explains the deep mesial and distal resorption of bone and later development of a pocket than does the term "vertical pyorrhea" with its implied background of a systemic factor.[2]

Conclusions

A multitude of factors, such as dirt, eruption of teeth, abnormally balanced functional occlusion, trauma of all sorts and systemic factors, such as tuberculosis, endocrine disturbances, blood dyscrasias and dietary deficiencies, may be the initiating factors in the development of a gingival crevice or pocket.

1. Systemic factors should be discovered and corrected if possible.

2. Since a gingival crevice has a hard side (tooth) and a soft side (adjacent soft tissue), treatment of both is required:

A. With regard to the tooth, prophylaxis and adjustment of excessive occlusal stresses are in order.

B. With regard to the soft tissues, massage and motion will eliminate extravascular elements through normal channels; namely, lymphatic capillaries. Electrocoagulation, electrosurgery or surgical measures will eliminate entirely the soft tissue side of the pocket. The foregoing measures allow for normal restoration of circulation as the new gingivae develop.

3. All methods will fail unless the patient and the dentist cooperate in the maintenance of healthy teeth and investing tissues. The dentist must have knowledge as to what constitutes a suitable range of occlusion in protrusive and lateral excursive movements of the mandible and normal balance in centric relationship and how the latter may be achieved. The dentist must teach the patient how to clean and massage tissues to help develop healthy deflecting gingival contours.—*55 East Washington Street.*

Medical Care Plans.—To date, twenty-nine states have enacted laws dealing with medical service plans. More than half of these laws were enacted during 1945 and the early part of 1946, when fifteen states (Alabama, Arizona, Florida, Illinois, Iowa, Kansas, Kentucky, Maryland, Minnesota, Mississippi, North Dakota, Rhode Island, Tennessee, Texas and Wisconsin) passed such laws for the first time and five states (Connecticut, New Hampshire, New Jersey, New York and West Virginia) amended or re-enacted legislation already in force. Thirty-six states have also passed laws regarding nonprofit hospital service plans.

Recent legislation on voluntary nonprofit prepayment medical care plans is particularly significant from one aspect—the provisions made for participation by physicians. The fifteen states recently enacting new laws for the regulation of these plans have followed the precedent set by such states as New Jersey, Ohio and Pennsylvania, where the legislation was formulated along lines demanded by medical society groups. In most of these fifteen states, under the present laws, the future of prepaid medical care will be largely in the hands of the medical profession, as it is now in New Jersey, Ohio and Pennsylvania, to the exclusion of other nonprofit or profit organizations or groups.

Dental service may be provided under the provisions of laws passed in four states—Maryland, Mississippi, New York and Texas.—*Margaret C. Clem, "Recent State Legislation Concerning Prepayment Medical Care." Social Security Bull. 10:10, January 1947.*

ANTERIOR FIXED BRIDGE PROSTHESIS INCLUDING ACRYLIC RESINS

Arthur O. Klaffenbach, D.D.S., Iowa City, Iowa

THE practice of crown and bridge prosthesis has included many technics and procedures for replacing missing teeth. Some advances have resulted from determining the causes for failures and making a conscientious effort to prevent their recurrence; others have resulted from the newer knowledge of diagnosis, recognition of the biologic, preventive and physiologic phases and planning of treatment. The application of merely mechanical principles to the restoration of lost teeth is now acknowledged as an outstanding mistake, recognition of which has been instrumental in readjustment of the mechanical procedures which many times resulted in pathologic conditions.

Selection of Appliance

Clinical experience indicates that if conditions are favorable for application of the modern fixed bridge for restoration of lost anterior teeth, it is superior to a removable appliance because of its greater stability, efficiency, comfort, convenience and permanency.

The condition, anatomic form and size of the abutment teeth, their relative positions in the arch, the amount of alveolar support, the health of the periodontium and the bite are factors which must be given proper study before a decision is made in favor of the fixed bridge restoration. If all abutment teeth were vital, sound, square in type, sufficiently long, parallel with each other, with the same inclinations and favorable occlusion, it would be a comparatively simple matter to select and construct adequate appliances for them. Difficulties arise, however, in proportion to the deviations from these ideal conditions.

The three quarter crown, although not universal in its application, is the abutment of choice in many cases. Since there are a number of different types of three quarter crowns with various modifications of groove or pin retention or a combination of both, some study is required to select the one that will provide adequate retention without undue loss of tissue and will limit the display of gold to a minimum (Fig. 1). Unfortunately, use of some of these crowns is not based on essentials of proper preparation of the cavity, such as resistance, retention form and extension for prevention of caries. This is attributable primarily to zealousness on the part of the operator to conserve tooth structure, simplify preparation, save time and achieve maximum results from an esthetic standpoint.

Important diagnostic factors should include consideration of such factors as the anatomic form and size of the crown of the abutment tooth; the possibilities of paralleling it with the other abutment or abutments, whether sound, carious or filled, and the possibilities for adequate retention and desired esthetic results. In the more complicated cases the study cast should be carefully surveyed as to the line of placement, retention and esthetic appearance to de-

Read at the eighty-first midwinter meeting of the Chicago Dental Society, Chicago, February 13, 1946.

Professor and Head of the Department of Clinical Crown and Bridge Prosthesis, College of Dentistry, State University of Iowa.

termine the possibilities for successful application of the three quarter crown.

Three-Quarter Crown

The anterior three quarter crown abutment, when properly constructed to fit a carefully selected and accurately prepared abutment tooth, provides ample retention and resistance to the stresses of mastication. Short teeth, tapering teeth, carious teeth in which proximal grooves cannot be placed in enough sound dentin throughout their length and tipped teeth whose mesial and distal surfaces cannot be paralleled with each other without too much incisal converging are unfavorable for its application (Fig. 2). Parallel proximal grooves of sufficient length, not too triangular in shape, are essential. The labial and incisal margins must be carefully planned in order to avoid unnecessary showing of gold. A device for determining the parallel axes of the abutment teeth should always be used for paralleling the surfaces and grooves with the determined path of insertion, so that the completed bridge will fit without strain on the abutment teeth. Abutments cemented under strained conditions soon loosen and develop leaky margins.

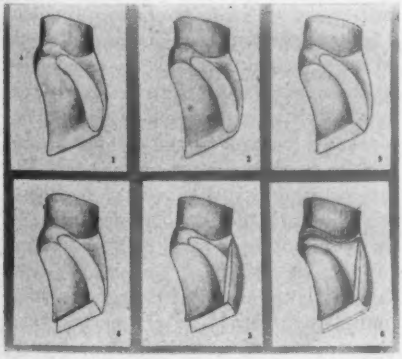

Fig. 1.—Technical procedure, in sequence, for making typical upper anterior three quarter crown

Fig. 2.—Upper anterior fixed bridge with three quarter crown abutments and porcelain saddle pontics

The pin ledge abutment consists of a thin lingual plate of gold which extends laterally onto the proximal surfaces. Anchorage is obtained from three pins protruding from the lingual plate. Unless the lingual plate is of sufficient thickness, adequately extended incisally and labially, and the pins are of sufficient length, are parallel with each other and fit the holes in the abutment tooth accurately, there will not be enough retention and the pin ledge abutment soon will loosen. When the abutment has loosened, caries progresses rapidly into the pinholes and soon involves the pulp.

Gold Crown

If the abutment tooth is so carious, extensively filled or malformed that it cannot provide adequate retention for a three quarter crown, the gold crown with labial porcelain veneer frequently can be used to advantage. The preparation consists of a labio-gingival shoulder fading into a linguogingival finishing line. Retention of the porcelain has given some trouble. Color difficulties also are encountered when the porcelain veneer is thin, light in shade or translucent, even though opaque porcelain is used

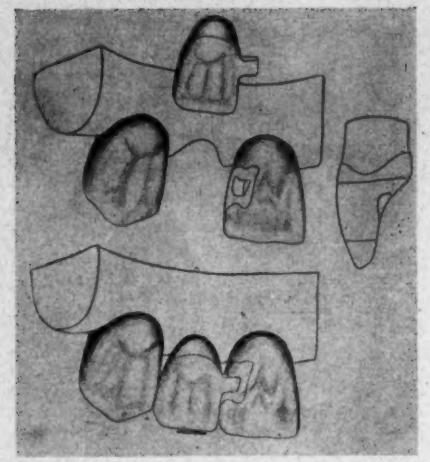

Fig. 3.—Broken stress bridge with lug seat in class 3 inlay in central incisor and three quarter crown abutment on cuspid

to mask out the underlying gold.

Acrylic resin veneer, which is being used to a limited extent instead of porcelain veneer, provides better retention because it is processed directly into the undercuts provided for it in the gold portion of the crown. However, thin acrylic veneer also presents color problems because of the translucency of the methyl methacrylate and the impossibility at times of blocking out entirely the effects of the gold backing. Since acrylic resin veneer is softer than porcelain, an occasional polishing is necessary to maintain the required luster. This material is in an experimental stage and therefore must be used with discretion.

Multiple Abutment

Occasionally the abutment tooth adjacent to the edentulous space is not adequate to support or retain one end of the bridge. In such cases a multiple abutment may be used to advantage. For instance, if there is any question regarding the ability of a lateral tooth to withstand the stresses, both the lateral incisor and the cuspid may be utilized and two three quarter crowns or other types of abutments may be soldered together to provide ample retention and stability for that end of the bridge. When multiple abutments are used, the interproximal space must be left large enough to permit threading dental floss through it to facilitate cleansing by the patient.

Porcelain

The esthetic qualities of an anterior bridge are dependent to a great extent on careful selection and use of porcelain. Anatomic form, size, surface markings, color harmony and alinement must be skillfully incorporated into the porcelain facings or pontics if the natural teeth they replace are to be simulated (Fig. 3).

Tooth forms have been carefully classified by Williams, House and others, but there are far too many to make it practical or profitable for the manufacturers to supply all of them. Consequently, facings or pontics of only average typal forms are available. After the best selection has been made from the forms available, the dentist's ingenuity and skill in reshaping can create greater esthetic unity.

Matching the color and color blending of natural teeth with porcelain facings or pontics at times presents a problem. The limited number of shades and blends of stock facings available, poor selection by the operator and the change in shade as a result of the effects of the gold or platinum backing or the opaque cement are the chief causes for mismatches. This limited range of shades may be broadened by using the shade guides furnished by manufacturers. Even then many teeth cannot be matched accurately, and shades harmonious with the remaining natural teeth must be chosen. Staining may be resorted to as an alternative, the facing may be ground thin and opaque and the correct shades of porcelain correctly blended and fused to it or the en-

tire facing or pontic may be constructed of properly blended porcelain.

The color of natural teeth may be classified as relatively opaque and translucent. Translucency is not constant in natural teeth but varies in different persons. The correct positioning of translucencies in porcelain teeth aids materially in making them appear natural; however, translucent incisal edges have been overstressed. Such regions occur most frequently in the teeth of younger patients; consequently the translucent type of facing matches this group best. The opaque type produces better results in the older patient.

The theory of fluorescence relative to tooth color requires further investigation. In the construction of a porcelain pontic, advantage should be taken of every available factor which will increase the illumination within the porcelain, so that the effect of fluorescence in the natural teeth may be imitated. At present some of the newer facings have this property of fluorescence under ultraviolet light, but the quality is yellow, which is not generally found in teeth of the Caucasian race.

The newer facings with greater translucency and translucent incisal regions are now available in two types (Fig. 4). The interchangeable type without a porcelain tip is objectionable because of the gingivo-lingual space present when it is placed in contact with the tissue of the labial ridge. The pin facing type with baked porcelain tip or saddle is preferable when there is sufficient gingivo-incisal length to permit its use. Since both types are constructed of translucent porcelain, they are more fragile and glassy than the regular facings, and the shades are more readily affected by the gold alloy backing and opaque cement. Although the unprotected incisal edge of the porcelain greatly improves the result from an esthetic standpoint, especially in younger patients, the possibility for breakage of the porcelain is too great to permit its use except where the most favorable bite and stress conditions exist. Unfortunately the gold incisal protection has a tendency to affect both the translucency and the shade of the facing. This may be overcome to a certain extent by using carefully selected shades of cement. Partial protection of the incisal area may be obtained by extending triangular gold projections linguo-incisally, leaving them slightly higher than the surface of the porcelain for additional protection.

Anterior so-called tube teeth constructed of the newer translucent porcelain are satisfactory from an esthetic standpoint, but they are objectionable because a portion of the saddle must be made of gold alloy and the solder joints must be confined to the gingival third of the interproximal areas, which is not conducive to hygiene or the health of the ridge tissues.

The long pin facing with a saddle constructed of porcelain fused to a slight overglaze at 2,300 F. and a backing of medium hard gold alloy still remains the pontic of choice in most cases. Its adaptability of anatomic form, function and ridge tissues, strength, esthetic value and hygienic qualities make it possible so to design and construct it that the anatomic, functional and mechanical requirements of a bridge pontic can more nearly be achieved.

Fig. 4.—Auxiliary gold reinforcement for pontics with translucent incisal regions

When properly constructed and designed, the porcelain saddle with its smooth surface, compatibility with soft tissues and hygienic qualities does not irritate the soft tissues. However, precautions must be observed to reduce the saddle area to a minimum in size and to have only slight tissue contact without pressure (Fig. 5). Pressure in this area will produce inflammation or hypertrophy and consequently must be avoided. The mesial and distal areas should be slightly out of contact, with only a narrow ridge, extending labiolingually, touching the ridge tissues. This will permit the soft tissue to become adapted to the porcelain and fill the interproximal spaces, thus simulating the gingival outline around the natural teeth. When there is only slight contact, the underlying tissues will be stimulated and massaged during the process of mastication, maintaining them in a state of health and cleanliness.

Compensation that has occurred in the healed ridge as a result of resorption should be provided for by reducing the labiolingual diameter of the saddle area. The construction of a porcelain saddle the same area as the natural tooth which it replaces necessitates lengthening the labial portion of the saddle. This places the gingival outline higher on the ridge, makes the pontic longer and gives it an unnatural appearance. Decreasing the labiolingual diameter, which slightly depresses the labial aspect and causes it to conform with the existing ridge width and the gingival outlines of the abutment teeth, overcomes this difficulty.

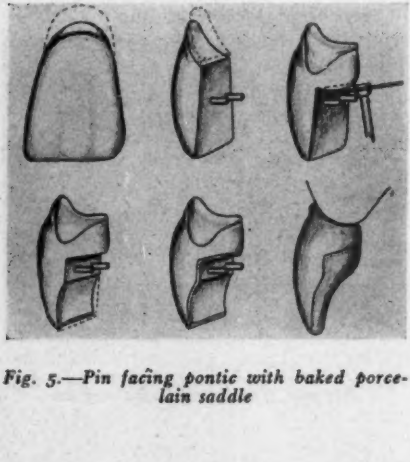

Fig. 5.—Pin facing pontic with baked porcelain saddle

Since it is impossible to estimate immediately after extraction the exact amount of shrinkage or the shape of the ridge after it has fully healed, placement of a permanent bridge should be postponed until the ridge is fully healed. In the average case this will require approximately six weeks. A temporary restoration can be made with a partial denture constructed before, and placed immediately after, extraction and worn by the patient until ridge conditions are satisfactory to insure permanency of the relation of the ridge to the tissues and the porcelain saddle.

Acrylic Resins

Enthusiasm for the broad usefulness and growing application of plastics is justifiable, but such enthusiasm must be tempered with realism. Plastics are manmade and are a result of advances in chemical knowledge. Like all other structural and restorative substances, plastics possess their limitations as well as their virtues.

Because of a predominance in polymethyl methacrylate of certain qualities desirable in a dental material, this has been chosen, in preference to other plastics, for denture bases and teeth and operative, crown and bridge prosthesis. To assume, however, that because polymethyl methacrylate is satisfactory for a denture base or an entire denture including the teeth, it will be equally satisfactory for crown and bridge restorations is, in my opinion, a false hypothesis. The unlike service demanded, the difference in conditions under which each functions and the fact that the denture is removable and the crown or bridge is

permanently placed clearly indicate that a material that would be satisfactory for denture prosthesis might not, to the same extent, meet the requirements for crown or fixed bridge prosthesis. A removable denture has exerted on it an average masticating poundage of 22; the crown or bridge has exerted on it from 50 to 150 or more pounds.[1]

Since the introduction of methyl methacrylate into the realm of crown and bridge prosthesis there has been considerable disagreement and hesitancy relative to its application, merits and limitations as a restorative material. More than five years of extensive physical, chemical, laboratory and clinical research have revealed, as shown by the table, that it possesses some very desirable qualities and also some undesirable ones which restrict its application in this branch of restorative dentistry.

Methyl methacrylate for crown and bridge restorations

Undesirable properties
Low hardness number
Dimensional instability
Cold flow
Water sorption
Shrinkage
Thermal expansion
Strains
Continued dimensional changes (in service)
Low modulus of elasticity
Affinity for chewing gum, comb honey and so forth
Inadequate cementing medium
Discoloration
Color difficulties
Affected by solvents
Checking, crazing and so forth
Desirable properties
Esthetic possibilities
Tissue tolerance
Nonconduction
Translucency
Readily manipulated
Moldability
Low cost equipment
Repairability
Useful for certain repairs, temporary restorations, orthodontic appliances, pedodontics and emergency cases

Fig. 6.—Lingual view of reinforced methyl methacrylate fixed bridge. Excessive wear and exposed portion of gold structure are evident

The indentation hardness of acrylic resin is the lowest of any dental material used for crown and bridge restorations.[2] Its low modulus of elasticity and toughness increases to a certain degree its resistance to wear and abrasion; nevertheless clinical observation reveals wear, abrasion and deformation or flow (Fig. 6). These vary in proportion to kind (natural, porcelain or acrylic), the condition and roughness of the opposing natural or artificial teeth, the food (hard, soft or abrasive) and the habitual efforts of mastication. In cases of close bite, especially, it is frequently only a question of time until the acrylic jacket abutment is worn through to the natural tooth.

The dimensional instability of acrylic resin has been the cause of numerous failures. The linear processing shrinkage is from 0.30 to 0.53 per cent during polymerization in the mold,[3] which is

1. Klaffenbach, A. O., Gnathodynamics. *J.A.D.A.* 23:371 (March) 1936.

2. Souder, Wilmer, and Paffenbarger, G. C., *Physical Properties of Dental Materials.* Circular of National Bureau of Standards C433. Washington, D. C.: U. S. Department of Commerce, February 6, 1942, p. 153.

3. Tylman, S. D., Where and How May Acrylics Be Used in Restorative Dentistry? *J.A.D.A.* 29:640 (April) 1942.

more than compensated for by water adsorption when the material is immersed in water or saliva after processing. Most of this expansion occurs during the first five or six days of immersion but it continues slowly over a period of several weeks. Expansion as a result of water adsorption has been directly responsible for the loosening and breaking away of acrylic jacket crowns and abutments from the cement, especially when they are cemented to place in a dried out condition. The number of cementation failures, as a result of water adsorption, can be materially lessened by immersion of the restoration in water for a week or more before cementing it to place and by avoidance of drying with warm air previous to placement.

In addition to processing shrinkage and water adsorption expansion, the thermal expansion, which is about ten times more than that of dentin or silicate cement and seven times as much as that of tooth enamel for each Centigrade degree of change in the mouth, is to a certain extent responsible for loosening of the acrylic resin abutments after the restoration has been placed in service.[4]

The low modulus of elasticity, an index of stiffness, is another of the weak physical properties of this material.[5] Its elasticity results in a certain amount of deformation, either temporary or permanent, from stresses placed on crown or bridge restorations. The use of the so-called all acrylic anterior fixed bridge restoration (without reinforcement) has caused many unsatisfactory results attributable to this lack of structural stiffness. These all acrylic bridges provide a highly esthetic restoration but lack stiffness and resistance against elastic and permanent deformation.

To overcome these inherent weaknesses, a gold reinforcement or skeletal gridlike structure is being used, over which the methyl methacrylate portions of the abutments and pontics are processed. This bridge is a marked improvement and has to a great extent supplanted the all acrylic type.

The reinforced acrylic resin abutment consists of a thin gold cap, thimble, band or modified three quarter crown over which the acrylic jacket is processed and to which the pontic reinforcement bars or structure is soldered. From a biologic viewpoint the question arises whether it is justifiable to cut away a sound, healthy anterior tooth to the extent required for the gold reinforcement and for an ample thickness of acrylic resin for strength and color and thereby possibly affect the vitality of a healthy pulp.

It is now generally known that certain chewing gums stick tenaciously to most methyl methacrylate fixed bridge restorations, and their removal is extremely difficult. Patients with acrylic resin restorations should be told to refrain from chewing gum in order to avoid a most unpleasant experience.

Acrylic Veneer

In some cases the gold crown with acrylic labial veneer may be used to advantage as an abutment. From the esthetic standpoint it does not rank as high as the acrylic crown, but it is preferable for patients with close bite and in cases in which greater strength is needed. The veneer is anchored securely by being processed directly into undercuts in the gold. Because of its softness it tends to lose its luster and to discolor. Repeated polishing or prophylaxis soon obliterates the anatomic markings and gives it an unnatural appearance. Even though an opaque coating is applied over the gold for masking, mismatches will occur when the acrylic resin veneer is thin.

Reinforcement for the pontic consists

4. Souder, W. H., and Peters, C. G., An Investigation of the Physical Properties of Dental Materials. National Bureau of Standards, Tech. Paper No. 157. Washington, D. C.: U. S. Department of Commerce, p. 18.

5. Gieler, C. W., and Skinner, E. W., Physical Properties of Some of the Newer Denture Plastics. *J. D. Res.* 18:381 (August) 1930.

of bars and so forth that are designed to give adequate rigidity with a minimum of bulk and to prevent lines of fracture, rotation or loosening of the replacement. The gridlike structure is formed in wax, cast and soldered to the cap, thimble, labial veneered crown or gold three quarter crown abutment. The correct positioning of the reinforcing structure is of utmost importance. If it is placed too far labially, the color of the pontic will be affected. If it is placed too far lingually, the reinforcement will be covered by too thin a layer of acrylic resin which will wear through rapidly or flake away from the gold. Other problems encountered are making the pontics appear as individual teeth and minimizing the contact point area. If the pontics are too large, a reduction in the size of the labial embrasures and interproximal spaces results. This detracts from the natural appearance and the hygienic qualities of the restoration.

Plastic Teeth

To simplify the procedure for producing correctly shade-blended pontics and abutments in the finished restoration, manufactured plastic teeth frequently can be used to advantage. Unfortunately at present they are available in a limited range of molds and shades. Precautions must be taken during the fabrication of such a fixed bridge so that the manufactured plastic teeth are not ground too thin nor flamed during the waxing procedure, do not come in contact with any wax solvents and are not overheated during polishing. Also, the restoration must be kept in water until it is cemented to place if crazing or checking of the surfaces is to be avoided.

Comment

This partial analysis would indicate that such factors as permanence and service are in a transitory state of evolution and experimentation. Consequently, the use of methyl methacrylate creates responsibilities to the patient which must be borne in mind by the dentist in providing anterior fixed bridge restorations.

Chemists inform us that the multitude of chemical compounds yet to be discovered, investigated and perfected is beyond imagination. This being the case it does not seem unlikely or impossible that in the future a plastic may be produced that will more nearly meet the predetermined qualities of a dental restorative material.

Gelatin Sponge.—The absorbable hemostatic agents are a contribution to the practice of medicine and especially to surgery. Gelatin sponge has been studied experimentally and clinically and found to have desirable properties from the standpoint of absorption and hemostatic action, as well as some limitations. The gelatin sponge is a valuable addition to the field of the absorbable hemostatic agents.

These materials will undoubtedly contribute to a greater degree of safety by conserving blood loss, not only in the first-aid treatment of surface wounds, where hemorrhage may be the principal immediate problem, but also in operative procedures generally.

There is no place for controversy with respect to use of the hemostatic agents in place of ligature or suture when these would ordinarily suffice. The principal field of usefulness of the hemostatic agents is where ligature or suture is not adequate, feasible or desirable, or as a supplement to suture.—*H. P. Jenkins and others, "Present Status of Gelatin Sponge for the Control of Hemorrhage with Experimental Data on Its Use for Wounds of the Great Vessels and the Heart." J.A.M.A. 132:619, November 16, 1946.*

SUBMUCOUS SURGERY FOR BETTER DENTURE SERVICE

Julius G. Godwin, D.D.S., St. Louis

FOREMOST in the consideration of a proper denture foundation for edentulous patients are the following three factors: (1) bony base; (2) mucoperiosteum; (3) degree of immobility of mucoperiosteum.

Proper Denture Foundation

Bony Base.—After the extraction of teeth, there is a process of bone resorption along the crest of the alveolus simultaneous with the bone formation in the socket. Ultimately complete closure of the alveolar sockets takes place provided the sockets are not infected. The bone structure of the resulting edentulous jaw is variable in density; clinical observation seems to indicate that the more resilient the overlying soft tissue is the less compact and resistant the bony base.

The presence of prominent alveolar ridges, sharp bony spines and deep undercuts may handicap efforts to secure successful denture service. Judicious surgical intervention will improve the anatomic shape and quality of the denture foundation. Excessive bone resorption, on the other hand, presents even greater problems. Unfortunately, no satisfactory method of treatment to alleviate this condition has been found. Transplantation of bone, cartilage and other tissue for the creation of an alveolar ridge has been found inadequate in most instances, particularly as a foundation for dentures.

Mucoperiosteum.—Overlying the bony base is the mucoperiosteum, which consists of the mucous membrane with its epithelium, the lamina propria, the submucosa and the periosteum (Fig. 1). The epithelium and the subepithelial connective tissue proliferate early in the healing of extraction wounds. Shortly before the first roentgenographic evidence of new bone is found, the epithelium completely covers the wound. After healing is complete, a thick hornified layer covering the mucosa provides an ideal denture-bearing surface.

The layer of soft tissue covering the bone of the edentulous jaw may be thin at times and cannot withstand stress or

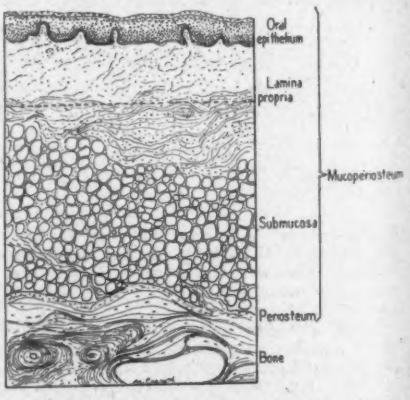

Fig. 1.—Cross section through mucoperiosteum overlying bony base of edentulous jaw. Dotted line shows approximate level of dissection of mucous membrane flap

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Fig. 2.—Pendulous soft tissue masses covering oral aspect of upper lip and anterior region of maxilla

pressure because of the absence of sufficient submucosa. To improve this condition Kazanjian[1] and others suggested elevation and separation of the thin mucoperiosteum from the bone; this procedure allows the blood to fill the space and organize, thus adding to the resiliency of the denture base.

Many times the opposite of this condition may exist: The layer of soft tissue may be thick. If some of the excess mucoperiosteum is trimmed, the formation of flabby ridges is prevented.

Hyperplastic proliferation of soft tissue overlying the alveolar ridge and sulcus may result from various causes. Among those may be mentioned mild chronic irritation of ill fitting dentures and roughness of the bony base. The condition may also be brought about when only natural mandibular incisors are present and exert an unduly heavy masticatory pressure against an upper denture. In these instances the submucosa is extremely thick and contains a great amount of fat and areolar tissue. These exuberant soft tissue growths permit extensive positional changes and are unsuitable for successful denture construction.

Degree of Immobility of Mucoperiosteum.—Perhaps the most important factor is the degree of immobility of the mucoperiosteum. The soft tissue may vary somewhat in thickness, firmness and resilience in various parts of both edentulous jaws, but the extent of the areas of immovable soft tissue is a deciding factor in the retention of the denture. A movable and changeable mucoperiosteum is unsuitable. The greater the extent of immovable soft tissue covering the bone, the more assurance one has of getting the maximum positive extension of surface area for the denture base which can withstand the stress and pressure of mastication.

Submucous Surgery

Purpose.—The purpose of submucous surgery is to obtain a denture foundation which has a smooth bony base and sufficient mucous membrane supported by enough submucous tissue to give slight resiliency and no mobility.

Before surgical intervention is planned, hard and soft tissues should be examined carefully by inspection, palpation and roentgen rays. The age and the health of the patient also have to be taken into consideration.

Indications.—Submucous surgery is indicated in the following instances: (1) if there are pendulous soft tissue masses of the maxilla and the mandible, containing excessive amounts of submucosa; (2) if it is desirable to extend areas of denture foundation which are free from mobility of the mucoperiosteum; (3) if an increase in depth of the labial or/and buccal sulcus is desired provided there is sufficient vertical height of the mandible; (4) if the submucosa of the tuberosity has produced excessive undercuts and interferes with the correct vertical interdental dimension; (5) as an aid in

1. Kazanjian, V. H., Surgery as an Aid to More Efficient Service with Prosthetic Dentures. *J.A.D.A.* 22:566 (April 1) 1935.

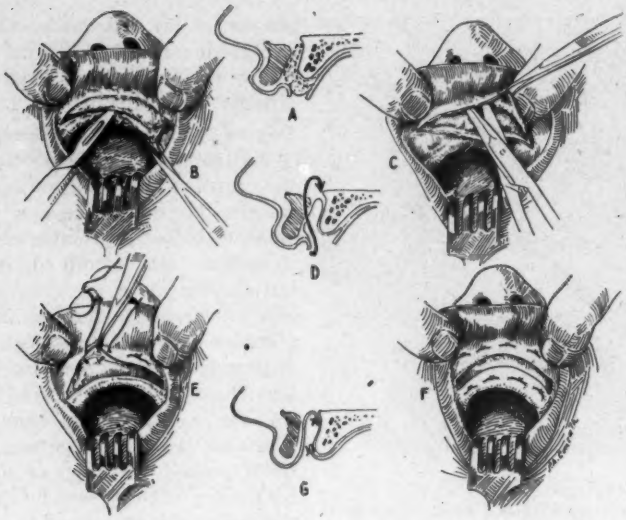

Fig. 3.—Submucous surgical operation on maxilla. A-cross section, B, C: Excessive amounts of submucosal tissue are excised from under mucous membrane by use of sharp lancet or scissors. D-cross section, E: Dissected free from superabundant submucosa, labial mucous membrane flap is sutured high up to labial surface of maxilla, at times as high as nasal spine. Gingivolabial sulcus is thus increased. F,G-cross section: Lingual mucous membrane flap is sutured back in place. Area not covered by mucous membrane because of shrinkage or scarcity of mucous membrane is left for granulation tissue to fill in

the treatment of nonunion of mandibular fractures, in which the jaw fragments could not be immobilized properly by circumferential wiring because of the presence of a superabundance of loose and movable submucous tissue.

Operation on the Maxilla

A married woman, aged 49, entered the dental clinic of St. Louis University, for the construction of new dentures. For the preceding year and a half she had noticed that her upper denture was "dropping," but she continued to wear her plates, using denture powders and different types of mouthwashes.

Examination.—Several large aprons of redundant tissue covered the oral aspect of the upper lip and the crest of the alveolar ridge of the maxilla and extended approximately from the bicuspid to the bicuspid region on either side. The labial vestibule was obliterated entirely, being filled with a superabundance of submucous tissue (Fig. 2). This unusual condition of the upper jaw necessitated submucous surgical intervention under local anesthesia.

Surgical Procedure.—As may be seen from a study of Figure 2, several pedunculated fibrous masses were particularly noticeable on the right side of the maxilla. These masses were freely movable and considered worthless as far as utilization of mucous membrane was concerned for reconstruction of the alveolar ridge and the gingivolabial sulcus. These masses were therefore excised *in toto*.

A horizontal incision fairly high in the labial fold was then made along the entire length of the nonpedunculated mass, extending approximately from the left first bicuspid region to the right second bicuspid region. This incision was made in a direction parallel to the mucous membrane surface and carried through the full depth of the fibrous mass and as high upward as possible. Care had to be taken that the knife divided the mucous membrane from

Fig. 4.—Result of surgical removal of pendulous soft tissue masses shown in Figure 2

the submucosa as evenly as possible without piercing the mucous membrane. The excessive amounts of submucosal tissue were excised from under the mucous membrane (Fig. 3 *A, B* and *C*). Likewise, the excessive amounts of submucosal tissue were carefully excised in a palatal direction.

With four interrupted mattress sutures (silkworm gut) the labial mucous membrane was then sutured high up to soft tissue strands adhering to the labial surface of the maxilla in close vicinity of the nasal spine (Fig. 3 *D* and *E*). The height of the gingivolabial sulcus was thus increased. The lingual mucous membrane flap free from submucosal tissue was brought over the crest of the alveolar ridge and sutured to soft tissue strands still left on the labial surface of the maxilla. The region not covered by mucous membrane was left for granulation tissue to fill in (Fig. 3 *F* and *G*).

The labial flange of the old denture was then built out with softened modeling compound. Both upper and lower dentures were inserted in the mouth and brought into centric occlusion. By finger pressure the compound was then molded onto the overlying skin and pressed into every corner of the newly created sulcus. To compensate somewhat for contraction of the sulcus, which was bound to occur to a certain degree, the modeling compound was finished with a well rounded peripheral border. After it had hardened, the labial flange of the upper denture was covered with a gauze dressing impregnated with a zinc oxide and eugenol paste. With the denture in centric occlusion, a Barton bandage was applied and positive pressure and immobilization maintained for several days.

Course.—During the two weeks following the operation, the mouth was frequently irrigated with an accepted mouthwash and the dressing changed daily. After healing was complete (Fig. 4), new dentures were constructed. The patient noticed a slight loosening of her upper denture, after she had worn it for twelve months. Clinical examination showed a slight proliferation of submucosal tissue in the anterior region (Fig. 5). New dentures were suggested to prevent any chronic irritation.

Comment.—Mere excision of some of the flabby folds would not be sufficient to obtain a proper denture foundation nor to give any ridge extension. Only if pedunculated soft tissue masses are present may such a procedure be indicated at times.

In some instances the mucoperiosteum may be raised *in toto* both labially and palatally before the excessive submucosa is dissected.

This type of operation preserves and utilizes as much mucous membrane as possible so that the denuded regions of bone later to be covered by granulation tissue are kept at a minimum. In spite of this fact scarcity of mucous membrane is encountered many times. Being of an elastic nature and detached from its underly-

Fig. 5.—Slight proliferation of submucosal tissue in anterior region twelve months after removal of tissue masses shown in Figure 2

ing support, the mucous membrane flap undergoes a certain amount of shrinkage at the time of the operation; this shrinkage is considered as unavoidable.

When one is suturing, particular attention should be paid to having enough tissue play. There should be a minimum amount of vertical tension on the tissue to prevent later dislodgment of the denture.

Undue injury of the mucous membrane flap (not mucoperiosteal flap) will materially increase the danger of sloughing. It is therefore mandatory to use sharp blades. By having the angle of the blade parallel to the slope of the mucous membrane surface, one somewhat obviates the danger of piercing the mucous membrane. Fine gum tweezers and curved scissors are at times helpful in separating the mucous membrane from the underlying submucosal tissue (Fig. 3).

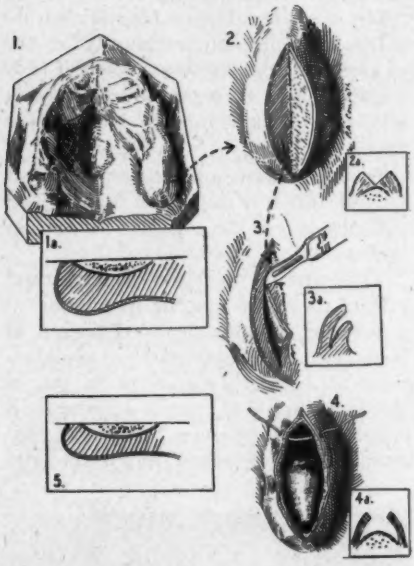

Fig. 6.—Submucous surgical operation on tuberosity. 1, 1a-cross section: Abnormally large tuberosities with excessive amounts of submucosal tissue overlying bony base. 2, 2a-cross section: Tuberosity after triangular-shaped section of soft tissue was removed preceding submucous surgical intervention. 3, 3a-cross section: Incision of submucosal tissue under mucous membrane flap on palatal side of tuberosity. 4, 4a-cross section: Wound edges after excision of excessive amounts of submucosa in palatal and buccal directions. Mucous membrane flaps are flexible. 5-cross section: Normal amount of submucosal tissue as result of operation

Operation on the Tuberosity

The patient had had all her teeth extracted many years previously but had never worn artificial dentures.

Examination.—Examination of her mouth revealed overprominent tuberosities with excessive soft tissue undercuts. Roentgenograms showed a large amount of soft tissue overlying the bony base in these regions, as illustrated in Figure 6, *1*. Satisfactory construction of dentures was impossible, and surgical intervention was advised.

Surgical Procedure.—With the region under local anesthesia two incisions were made, one 0.5 cm. buccally and one 0.5 cm. palatally from the midline of the tuberosity, converging toward each other in the bicuspid region and at the distal end of the tuberosity. These incisions were continued toward each other through the full thickness of the mucoperiosteum, meeting each other at the alveolar ridge. The triangular section of soft tissue thus formed with its apex at the alveolar ridge was removed *in toto*, as illustrated in Figure 6, *2*.

On approximation of the wound edges it was found that the palatal tissue especially was prominent and unyielding and that the vertical dimension of the tuberosity was not sufficiently reduced. An incision was therefore carried in a palatal direction undermining the mucous membrane (not the mucoperiosteum) for a distance of about 1 cm. (Fig. 6, *3*), and the hypertrophied submucous tissue was excised from under the mucous membrane. The same procedure was carried out on the buccal side. Subsequently, the margins of the wound edges were coapted (Fig. 6, *4*) with three interrupted sutures of fine braided silkworm gut. The final result (Fig. 6, *5*) was extremely satisfactory after reduction of both tuberosities.

Comment.—This technic is frequently employed at the dental clinic of St. Louis University. The usual method of

removing a triangular-shaped section is often not sufficient (Fig. 6, 2). Submucous surgical intervention in both a palatal and a buccal direction will not only reduce in size the prominent tuberosity but also help to remove undesirable soft tissue undercuts and make the palatal flap more flexible and less unyielding, thus preventing buckling on that side. In addition, there is an immediately epithelized surface, and the wound closes by first intention (Fig. 6, 3-5).

Operation on the Mandible

Four types of edentulous mandibles may be differentiated roughly in regard to submucous surgery:

Type I. Normal, well rounded, prominent ridge
- 1. Normal submucosa
- 2. Sufficient depth of sulcus
- 3. Low muscle attachments

Type II. Alveolar process and upper portion of mandible proper resorbed (bilateral or unilateral)
- A. Moderate degree of hypertrophy of submucosa
  - 1. Excess of resilient tissue extending along crest of ridge
  - 2. Partially obliterated sulcus
  - 3. Muscle attachments and mucous membrane folds approaching crest of ridge
- B. High degree of hypertrophy of submucosa
  - 1. Excessive amounts of superfluous tissue along crest of ridge
  - 2. Sulcus obliterated and filled with hyperplastic proliferation of soft tissue masses

Type III.
- A. Similar to type II except for extreme resorption in the posterior region
- B. Similar to type II except for extreme resorption in the anterior region

Type IV. Extreme resorption in the anterior and the posterior regions of the mandible

Subdivisions as for type II

It is obvious that these individual types are influenced by traumatic and systemic factors.

Since the characteristics of type I are considered as normal, only type II and, in selected cases, type III should be brought into consideration for submucous surgery. Sufficient vertical height of the mandible is essential, although the gingivolabial (gingivobuccal) sulcus may be obliterated by an abundance of submucosal tissue. The region of immovable soft tissue covering the bone is thus limited to

Fig. 7.—Submucous surgical operation on mandible. 1a-cross section, b: Location of incision in relation to buccal and labial sulcus to be created. 2a-cross section, b: Mucous membrane flap (not mucoperiosteal flap) detached, with underlying submucosa and periosteum excised or pushed down leaving bare bone exposed. 3a and b-cross sections, c: Mucous membrane flap resting against bare bone and sutured down into tissues beyond newly formed sulcus. Note rubber tubings in 3a and absorbable suture in 3b

Fig. 8.—Flexible rubber tubing under patient's chin, holding in place tubing in newly created gingivolabial sulcus of mandible

a narrow band. Mandibles classified as belonging to type IV should be eliminated from submucous surgery.

The following report of a case illustrates submucous surgical operation on the mandible:

A middle-aged man had been wearing full upper and lower dentures for many years. *Examination.*—Soft fibrous tissue extended along the crest of the alveolar ridge of the mandible, particularly in the anterior region. The gingivolabial sulcus was entirely obliterated and filled with an abundance of flabby hypertrophied tissue. Since the resorption of the alveolar ridge was relatively little and the vertical dimension of the mandible of sufficient height, submucous surgical operation on the mandible under local anesthesia was decided on. *Surgical Procedure.*—Approximately 1.5 cm. externally from the crest of the alveolar ridge a horizontal incision was made on the oral mucous membrane of the lip. With the same distance from the crest of the ridge being kept, this line of incision was extended to the bicuspid region on either side, where it was joined by two lateral vertical incisions terminating at the crest of the ridge (Fig. 7).

The mucous membrane flap thus outlined was carefully raised and separated from the underlying submucosal tissue in a direction toward the crest of the alveolar ridge (Note: mucous membrane flap, not mucoperiosteal flap). With the mucous membrane flap raised, the underlying submucosal tissue, the muscle fibers and the periosteum were resected away, leaving the bare bone exposed. The excision was carried down to a depth where reasonable assurance could be had that a normal sulcus would result after final contraction had taken place. Rough bony spots on the crest were smoothed over with a bone file. Subsequently, the mucous membrane flap was placed against the bare bone of the labial aspect of the alveolar ridge.

Owing to its elasticity the flap had under-

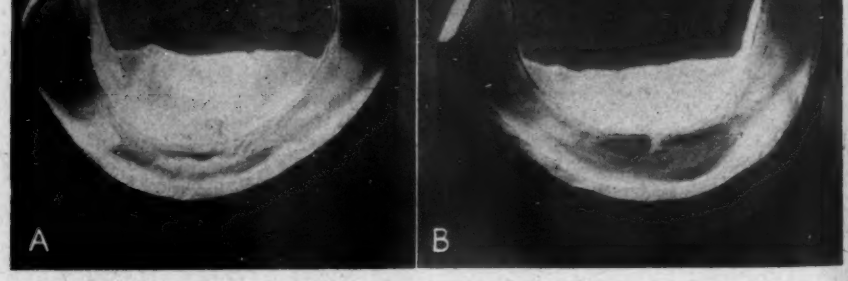

Fig. 9.—Appearance of lower alveolar ridge of patient shown in Figure 8. A: Preoperative—soft fibrous tissue extending along crest of ridge, gingivolabial sulcus obliterated and filled with hypertrophic tissue. Vertical dimension of mandible warranted surgical intervention. B: Postoperative

gone a certain amount of contraction, while it was being released from the underlying tissues. In order to control the elasticity the flap was carefully stretched and its borders sutured down into tissues beyond the newly formed sulcus by the use of absorbable sutures, care being taken that the sutures were placed as close as possible to the mandible proper and tested for retention before being tied. In addition, a flexible rubber tubing, 1 cm. in diameter, was placed in the newly created sulcus and held in position with three interrupted silk sutures which were passed through the chin onto the skin and tied there individually over another rubber tubing (Fig. 8). A zinc oxide and eugenol dressing was placed under the tubing in the sulcus before the silk sutures were pulled tight. In this way positive pressure and immobilization could be maintained over a long period. Any possible union of raw surfaces was prevented by the interposition of the tubing.

Course.—Within a week's time the raw surface on the labial and buccal aspect of the sulcus was covered with healthy granulation tissue. The rubber tubings were removed after eleven days, the zinc oxide and eugenol dressing having been removed after the third day of the operation. New upper and lower dentures were constructed. Ten months after the operation, the patient was wearing the dentures with satisfaction; there was some decrease in the size of the sulcus, but the alveolar ridge region remained extended with little mobility of the mucoperiosteum. The contraction line was clearly visible (Figs. 9 and 10).

Comment.—The location of the incision for this operation is made on the oral aspect of the lip or the cheek. In this way,

Fig. 10.—Decrease in size of sulcus of patient shown in Figure 8, ten months after operation

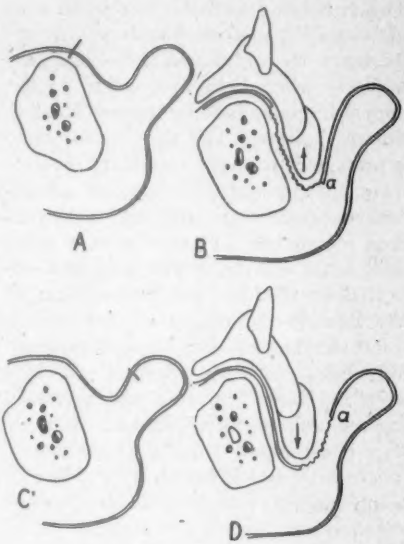

Fig. 11 (cross sections).—Line of incision used for submucous surgical intervention. A, B: At alveolar crest of mandible with resultant contraction line, a, at a low level. Thrust of mold is upward. C, D: On oral aspect of lip or cheek with resultant contraction line, a, at higher level (opposite infralabial depression). Thrust of mold is upward (after Fickling[2])

any mold (flange of extended denture, rubber tubing) subsequently placed in the newly formed sulcus will have the tendency to be pulled downward rather than upward, as pointed out by Fickling[2] (Fig. 11). The contraction line *a* in Figure 11, *D*, will be at a higher level than *a* in Figure 11, *B*, corresponding in level with the infralabial depression, which is to be desired for cosmetic reasons.

Several other advantages of this type of incision can be mentioned. It has been my observation that granulation tissue covering bone has a tendency to contract after its transformation into scar tissue and to draw the healthy movable mucous membrane from its immediate vicinity.

2. Fickling, B. W., The Prosthetic Aspect of the Buccal Inlay Operation. *Proc. Roy. Soc. Med.* 38:199 (March) 1945.

This is not so much the case when normal healthy mucous membrane covers the bone. Its contraction is lessened particularly when held in position to the underlying bony base by sutures. Healing time is shortened, and the alveolar bone is protected from any secondary involvement on its surface. Excision of submucosa and periosteum from under the mucous membrane for creation of a ridge and sulcus has been practiced and reported by Pichler.[3] In the opinion of W. Bauer,[4] pathologist of the school, some submucosal layers are unquestionably being detached together with the overlying lamina propria and epithelial layer when a so-called mucous membrane flap is separated from the submucosa. These submucosal layers are capable of transformation into periosteal tissue when the mucous membrane flap is subsequently laid against the bare bone (Fig. 1).

It might be added that Kazanjian[1] and others leave the mucoperiosteum undisturbed. In cases of extreme loss of mucous membrane, necessitating skin grafting, Pichler[3] recommends that the periosteum be left undisturbed, so that the graft will "take."

As to size, the sulcus should be made exceptionally large. Proliferation of submucosal tissue is bound to occur, causing some reobliteration of the sulcus, as shown after ten months in the case reported. Positive pressure and good immobilization during healing are likewise essential to make the operation a success.

The location of the mental foramen may be at times close to the crest of the ridge. To avoid paresthesia the mental nerve and vessels may have to be carefully dissected free and the mental foramen repositioned to a lower level by downward enlargement.—*3556 Caroline Street.*

3. Pichler, H., and Trauner, R., Alveolar Ridge Plastic. *Ztschr. f. Stomatol.* 28:675-697 (August) 1930.
4. Bauer, W., Private communication.

Performance of Returning Veterans in Universities.—The question of whether the veterans who return to continue their education do as well as other students is being studied by many colleges and universities, and Ohio State University has just published some of its findings.

Of the 219 returning veterans who had previously been enrolled in the college, fewer than one-tenth have done less well than they did before. Further comparison shows that the grade point average of the returning veteran is about two-thirds of a grade point higher than it was before the war.

Another comparison was made by matching more than one hundred freshman veterans with a similar number of nonveterans. These freshmen were matched on the basis of the psychological entrance test, and, although the average grade point of these veterans was slightly higher than that of the nonveteran freshman, the difference is too small to be considered significant. However, most of those in the nonveteran group were women, and many other studies have consistently shown the marks of women to be higher than those of men. This would lead to the conclusion that, if it had been possible to compare the marks of the returning veterans with those of men students, the difference would probably have been even greater in favor of the returning veteran.

It was also found that veterans whose pre-war scholastic record predicated that their chance of succeeding was slight are now performing better than would have been expected.—*Digested from L. L. Love and C. A. Hutchinson, "Academic Progress of Veterans." Educ. Res. Bull. 25:223-226, November 13, 1946.*

FEDERATION DENTAIRE INTERNATIONALE: THE POSTWAR PROGRAM

A. E. Rowlett, L.D.S., Leicester, England

AT THE last regular session of the *Fédération Dentaire Internationale (F.D.I.)* in August 1939 at Zurich, arrangements were completed for the publication of an international dental journal and the decision was made to hold an International Dental Congress in London in 1941. With the outbreak of war in September the carrying out of both these plans had to be postponed. A large part of Europe was soon occupied by the enemy, and the secretary general of the *F.D.I.*, Charles F. L. Nord, The Hague, was isolated until the liberation of Holland.

Activities During the War

During the war I visited the United States and Canada three times for the purpose of maintaining international dental relations and discussing problems concerning a comprehensive health service for the community and, in particular, a dental health service. The spirit of fellowship animating the *F.D.I.* was strikingly illustrated by the hospitality shown to me, during these visits, by members of the *F.D.I.*

The death of W. H. G. Logan, Chicago, president of the *F.D.I.*, in 1943, and the recent death of H. J. Burkhart, Rochester, N. Y., removed two men who knew Europe intimately, and their loss is irreparable. Fortunately, at the meetings of the American Dental Association, Dr. Logan and Dr. Burkhart had never ceased to stress the importance of international cooperation in improving dentistry, and Walter H. Scherer, president of the American Dental Association from October 1944 to October 1946, gave his support during his term of office.

In a discussion of the wartime activities of the *F.D.I.*, mention must be made of the work of the Commission of Oral Hygiene. This Commission is affiliated with the Red Cross at Geneva, a particularly happy and appropriate combination; for, just as oral hygiene is the foundation on which dentistry must be built, so do the ideals of the Red Cross at Geneva furnish the only safe foundation of constructive peace.

Although the *F.D.I.* might be described as dormant during the war, the Commission of Oral Hygiene was very active. My position as president of that Commission won a cordial reception in all official circles, health and otherwise, and I wish to take this opportunity of expressing my own indebtedness and that of the *F.D.I.* to René Jaccard, whose foresight and humanitarian ideals originally were responsible for this affiliation. Switzerland, one of the two European countries which escaped the ravages of war, established the *Secours Dentaire Internationale*, which, under the presidency of Dr. Jaccard, has given relief to many sufferers in countries where dental aid was almost nonexistent. The *F.D.I.* has shown its appreciation of this work by donating as large an amount as possible from its sadly diminished funds.

Postwar Activities

Immediately after the end of the war,

Address delivered by the president, A. E. Rowlett, to the members of the Executive Council, *F.D.I.*, Paris, November 22, 1946.

members of the Bureau of the *F.D.I.* got in touch with one another by letter. The secretary general, Dr. Nord, was full of enthusiasm to take up the work of reconstructing the *F.D.I.*, and meetings were quickly organized. In July 1945 an unofficial meeting was convened at Brussels, and in November 1946 a meeting was held in Paris in connection with the *Journées Dentaires.* A meeting of the Bureau and the Executive Council was held in June 1946 in Brussels, and the session of the Executive Council today was made possible by the hospitality of the *Ecole Odontotechnique.*

After World War I three years elapsed between the signing of the Armistice and the unofficial meeting of members of the *F.D.I.* at The Hague. The first regular session took place in September 1922, and it was not until August 1926, nearly eight years after the Armistice, that the first postwar International Dental Congress was organized at Philadelphia. When it is taken into consideration what has been accomplished in two years, under circumstances incomparably more difficult in every way than in 1918, and when, in addition, it can be stated that arrangements have been made for an International Dental Congress at Boston in 1947, the progress that has been made may be described as a superb international achievement.

Future Plans

The social upheaval brought about by the total war in which the world has been engaged will influence every postwar activity, including the plans of the *F.D.I.* For almost forty years the *F.D.I.* has presented a remarkable example of free enterprise and voluntary service by dentists of many nations inspired by the highest professional ideals. This altruistic spirit and the bond of good fellowship engendered by it enabled the *F.D.I.* to hold firm throughout World War I and today this bond is still unbroken.

Nevertheless, environmental factors have changed so radically that the machinery for operation which worked well in the period between 1900 and 1914 and which was workable, although creaking badly, from 1918 to 1939, today is entirely outmoded. Until 1939 there had always been a number of internationally minded dentists who, acting within a capitalist regime, were willing and able to devote time, energy and amounts of money sufficient to make the *F.D.I.* a going concern. Those conditions no longer exist. The young dentists of the future are not in a position to shoulder these financial burdens, for the intrusion of the state into health matters and crushing taxation have no longer left in the hands of the private individual the means of financing international concerns. It is, therefore, our task to adapt ourselves to this new environment. The methods of accomplishing this objective will form one of the most important subjects of discussion at meetings of the Executive Council and among American and European members of the *F.D.I.* before the next Congress. It should be fully understood that, although methods may alter, the spirit of the *F.D.I.* remains unchanged.—*238 London Road, Leicester.*

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LON W. MORREY, D.D.S., *Editor*

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EDITORIALS

ARMY AND NAVY PROMOTION BILLS DISCRIMINATE AGAINST DENTAL CORPS

THE recently introduced Army and Navy promotion bills, H.R. 2536 and H.R. 2537, present new obstacles that must be overcome in the dental profession's long and determined effort to improve dentistry's status in the armed forces.

H.R. 2537, a bill to regulate the distribution, promotion and retirement of officers of the Navy and Marine Corps and to provide for the advancement of enlisted personnel to commissioned grades, is particularly discriminatory to the Dental Corps.

It provides for the authorization of rear admirals in the Medical Corps, Supply Corps and Civil Engineer Corps up to one-half of 1 per cent of the number of officers on active duty in each of these corps. The Dental Corps, regardless of the number of its personnel, is limited to one rear admiral. Based on the ratio provided in the bill for the Medical, Supply and Civil Engineer Corps, the Dental Corps, with its present strength, would be entitled to at least six rear admirals. The bill further discriminates against the Dental Corps by providing that the chief administrative officer of the Dental Corps will be a rear admiral whereas the chief administrative officer of the Medical Corps, Supply Corps and Civil Engineer Corps will be a vice-admiral. Because of these discriminatory provisions, Navy dental officers would have but one-seventh the opportunity of physicians, accountants and civil engineers to attain flag rank.

A bill (H.R. 2536) to provide for the procurement, promotion and elimination of regular Army officers, introduced March 13, 1947, is also objectionable. It provides that medical officers when being considered for promotion are to be given credit for four years of active service. Dental officers in a like situation are to be credited with but three years of active service. Furthermore, the bill would permit the appointment of physicians as general officers in a number equal to three-fourths of 1 per cent of the total number of active officers in the Medical Corps. Fifty per cent of the general

officers would hold the grade of major general and 50 per cent would hold the grade of brigadier general. Only one general officer with the grade of major general would be provided the Dental Corps.

The need of Army and Navy personnel for more and better dental health service, the long and often discouraging fight by the Army and Navy dental officers to improve the dental services rendered to Army and Navy personnel, the favorable record established by both corps despite administrative hindrances and regulatory discriminations, the necessity of placing the Dental Corps on an equal level with other comparable corps and the unjustness of denying dental officers equal opportunities with other officers in both branches of the armed services make it mandatory that the dental profession take immediate steps to have these bills amended.

Representatives of the Committee on Legislation of the American Dental Association will attend the hearings on both the Army and Navy promotion bills. They will present amendments that will provide dental officers the same opportunities for promotion that are provided officers in the other corps.

THE ROLE OF FLUORINE IN DENTAL CARIES:

III. FLUORINATION OF DRINKING WATER

THERE is a considerable amount of scientific evidence to support the belief that children born and reared in areas supplied by ground water containing fluorine have fewer carious teeth than children who use fluorine-free water. This belief is sustained in many independently conducted studies, many of which reveal essentially the same facts. Dean[1] has reported on the relation between dental caries prevalence and fluorine concentrations in public water supplies in 7,257 children in twenty-one cities. The children who used waters containing as little as 1.0 part per million of fluorine experienced only about one-third as much dental caries as comparable groups of children using fluorine-free water. Studies in India,[2] England[3] and South Africa[4] reveal a similar correlation between low caries experience rates and the presence of fluorine in drinking water.

All of this presumptive evidence indicated the necessity of determining by actual experience if the artificial fluorination of public drinking water would provide the same degree of protection that apparently is afforded by the fluorides naturally present in ground waters. Demonstration studies are now being conducted, and sodium fluoride is being added to public water supplies which previously had a fluorine content of less than 1 part per million. Upon the outcome of these studies in Grand Rapids, Mich.; Newburgh, N.Y.; Midland, Mich.; Sheboygan Wis.; Evanston, Ill., and Brantford, Ontario, must rest the final evaluation of fluorination as a public health approach to the problem of dental caries.

1. Dean, H. T., *The Epidemiology of Fluorine and Dental Caries. A Symposium.* New York: New York Institute of Clinical Oral Pathology, October 30, 1944.

2. Day, C. D. M., Chronic Endemic Fluorosis in Northern India. *Brit. D. J.* 68:409 (May 15) 1940.

3. Weaver, Robert, Fluorosis and Dental Caries on Tyneside. *Brit. D. J.* 76:29 (January 21) 1944.

4. Ockerse, T., *Report on the Incidence of Dental Caries Among School Children in South Africa.* Department of Public Health, Union of South Africa. Pretoria, South Africa: Government Printer, 1944.

Public and professional interest in these studies has naturally been high because of the possibility of gaining the favorable results which can be tentatively projected from available information. Arnold,[5] for example, estimated that if the children living in Evanston, Oak Park and Waukegan, Ill., had used, instead of the fluorine-free waters of Lake Michigan, the water supplies of near-by Aurora, which contain 1.2 parts per million of fluorine, the following results might be expected: a 60 per cent lower dental caries experience rate; approximately a 75 per cent decrease in the loss of permanent first molars; approximately 95 per cent less dental caries in the proximal surface of the four upper incisors, and about six times as many children who would be caries-free. The expectation of such hypothetical results, plus some very uncritical comment and discussion in magazines and newspapers, has led to a general and often indiscriminate demand for the fluorination of water supplies before the necessary substantiating evidence has been obtained.

Actual experience in a number of controlled studies has shown that the topical application of fluorides to the teeth of children will reduce the incidence of dental caries.[6] Such experience and evidence are not yet available in the problem of fluorinating water supplies, and the eventual merit of such a program must remain a matter of speculation until current studies are completed. The community leaders and dental authorities who inaugurated the current studies deserve considerable credit for the scientific methods employed in organizing and conducting these demonstrations. Explanations to the public were forthright; extensive dental and physical examinations preceded the addition of fluorides to the water supply and will be continued methodically as the studies progress; suitable controls have been established so that a scientific evaluation can be made of the results that are reported in the years to come.

For those communities interested in adding fluorides to the water supply simply for the purpose of securing whatever benefits might accrue, the advice of Jay,[7] which represents the present consensus of authorities in this field, might well be heeded: "Until such time as the progress of these studies can be evaluated, the universal treatment of water with fluoride, except under rigidly controlled experimental conditions, is not indicated."

5. Arnold, F. A., Jr., Role of Fluorides in Preventive Dentistry. *J.A.D.A.* 30:499 (April 1) 1943.
6. Editorial, The Role of Fluorine in Dental Caries: II. Topical Application of Fluorides. *J.A.D.A.* 34:411 (March 15) 1947.
7. Jay, Philip, Fluorine and Dental Caries. *J.A.D.A.* 33:489 (April 1) 1946.

A. D. A. AFFAIRS

CONFERENCE ON PROSTHETIC DENTAL SERVICE TO BE HELD

The Conference on Prosthetic Dental Service, a meeting between the Committee on Prosthetic Dental Service of the American Dental Association and the chairmen of each of the state prosthetic dental service committees, will be held June 13-15 at the Stevens Hotel in Chicago, according to an announcement by Carl O. Boucher, Columbus, Ohio, secretary of the committee.

The details of the program for the conference have not as yet been completed, but the main topics to be considered are the education of dental laboratory technicians, the organization of dental laboratories and dental laboratory technicians for the purposes of liaison with the dental profession and the regulation of dental laboratories and dental laboratory technicians, Dr. Boucher said.

The discussion of these problems will lead toward the development of a working program for the guidance of the state prosthetic dental service committees and toward the eventual solution of the problems of dental laboratory service.

Those who have been invited to attend the conference are the chairmen of the state prosthetic dental service committees, the officers and members of the Board of Trustees of the American Dental Association, the chairmen of the prosthetic sections of the American Dental Association, the chairmen and secretaries of the Committee on Legislation and the Council on Dental Education, the chairman of the Committee on Trade Relations, the president of the American Association of Dental Schools and the president of the American Association of Dental Examiners.

A.D.A. TO PUBLISH COMPLETE AMERICAN DENTAL DIRECTORY

A new dental directory soon to be published by the American Dental Association will contain a listing of all dentists in the United States and also a number of sections on various aspects of dental organization.

The directory, to be entitled *American Dental Directory,* will include a chart of the organization of the American Dental Association, lists of component and constituent societies, lists of official dental magazines, lists of dental schools with standards for accreditation, a brief history of dentistry, the code of ethics and a section on state boards of dental examiners.

Other features will be a chart of the trustee districts, data on THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION and the *Journal of Oral Surgery,* lists of organizations affiliated with the American Dental Association and a section on dental services by the federal government.

The new book, first reference work on dentistry ever published, will list more than 70,000 dentists in the United States both alphabetically and geographically. In the geographical listing after the name of each dentist who submitted the data will be code symbols showing whether the dentist is a member of the American Dental Association, the type of his practice, the dental school from which he was graduated and the year of graduation. The complete address will also be given.

This will be the first publication ever to list nonmembers as well as members of the American Dental Association.

The book, which will contain approximately 1,000 pages, will be published in August. The directory will be sold at a special prepublication price of $10 directly from the central office of the American

Dental Association, 222 East Superior St., Chicago 11. The special price will be available only if the order is accompanied by the remittance. After the date of publication the price will be $12.50.

A.DA. DELEGATION NAMED TO LATIN AMERICAN CONGRESS

An official delegation to represent the American Dental Association at the Fifth Congress of the *Federacion Odontologica Latino Americana,* to be held next October in Buenos Aires, has been appointed by Sterling V. Mead, president of the American Dental Association.

The members of the delegation are H. B. Washburn, president-elect of the American Dental Association, chairman; Harold Hillenbrand, general secretary of the American Dental Association; Daniel F. Lynch, chairman of the Committee on International Relations; LeRoy M. Ennis, trustee from the third district; Spencer R. Atkinson, Pasadena, Calif.; James E. Aiguier, Philadelphia; Malcolm W. Carr, New York; Carlisle C. Bastian, New York; Andrew F. Jackson, Philadelphia, and Dr. Mead.

Juan Ubaldo Carrea of Buenos Aires is president of the Federation and is exerting every effort to make the Congress a truly Inter-American conference, according to Dr. Washburn. Dr. Carrea has extended an official invitation to the American Dental Association and to the Canadian Dental Association to participate in the Congress.

Dr. Washburn has asked that any dentists planning to attend the Congress communicate with him.

David M. Cohen, secretary of the organizing committee for the Congress, which will be held jointly with the First Inter-American Dental Congress, has announced that the opening date has not been definitely decided but that the two meetings probably will take place between October 3 and 15.

T. J. HILL ELECTED OFFICER OF DENTAL THERAPEUTICS COUNCIL

Thomas J. Hill, professor of clinical oral pathology and therapeutics, School of Dentistry, Western Reserve University, Cleveland, has been elected vice-chairman of the Council on Dental Therapeutics of the American Dental Association.

Dr. Hill, who is also an assistant professor of pathology, School of Medicine, Western Reserve University, has been a member of the Council on Dental Therapeutics since 1930. He is also a research consultant, U. S. Public Health Service; past president of the International Association of Dental Research; a fellow of the American College of Dentists, and a member of the American Association for the Advancement of Science and the Revision Committee of the U. S. Pharmacopeia.

New Therapeutics Officer

Thomas J. Hill, professor of clinical oral pathology and therapeutics, School of Dentistry, Western Reserve University, Cleveland, has been elected vice-chairman of the Council on Dental Therapeutics of the American Dental Association

LOCAL ARRANGEMENTS COMMITTEE FOR BOSTON MEETING ANNOUNCED

The members of the Local Arrangements Committee appointed to handle arrangements for the eighty-eighth annual meeting of the American Dental Association, to be held August 4-8 in Boston, have been announced. The committee is working under the direction of the central office of the American Dental Association.

The committee officers and subcommittees follow.

Philip E. Adams, Boston, secretary of the Massachusetts Dental Society, general chairman; Glenn W. Lawrence, Boston, treasurer of the Massachusetts Dental Society, vice-chairman; James H. Maycock, Worcester, Mass., president-elect of the Massachusetts Dental Society, ex officio, and Herbert I. Margolis, Newton, Mass., president of the Metropolitan District Dental Society, ex officio.

Honorary Chairmen, LeRoy M. S. Miner, Boston; Percy R. Howe, Boston, and Henry Hicks, Greenwich, Conn., trustee from the first district.

Publicity: John R. Wallace, Winchester, Mass., chairman; Mr. Herbert B. Bain, director of press relations for the American Dental Association, vice-chairman, and Mr. L. T. Maloney, Boston, assistant to the president of the Massachusetts Dental Society, secretary.

Entertainment: Frederick E. Grant, Dedham, Mass., chairman; William M. Parks, West Somerville, Mass., treasurer of the Metropolitan District Dental Society, vice-chairman, and William H. Griffin, Boston, secretary. *Health and Scientific Exhibits:* Frederick A. Trevor, Melrose Highlands, Mass., chairman, and Ralph B. Lancaster, Boston, vice-chairman.

Public Relations: Hyman Schwartz, Boston, chairman, and Harold H. Hookway, Boston, president of the Massachusetts Dental Society, vice-chairman. *Information:* Roger J. Edwards, Woburn, Mass., chairman, and David D. Bloom, Boston, vice-chairman.

Clinic: Edwin M. Scribner, Boston, chairman, and George F. Bearse, East Milton, Mass., vice-chairman. *Associated Groups:* Frank W. Rounds, Boston, chairman, and Frederick W. Allen, Boston, vice-chairman.

Halls and Hotels: Maurice E. Peters, Boston, chairman, and Cedric F. Harring, Brookline, Mass., vice-chairman. *Reception and Transportation:* George C. Brown, Worcester, Mass., chairman; Stephen P. Mallett, Boston, vice-chairman, and Maurice E. Peters, secretary.

American Dental Trapshooters League: Frank M. McLean, Boston, chairman. *Golf:* Herbert Esterberg, Newton, Mass., chairman.

A.D.A. COMMITTEE NAMED TO WORK WITH DENTAL ASSISTANTS

A special committee of the American Dental Association to work with a similar liaison committee of the American Dental Assistants Association has been appointed by Sterling V. Mead, president of the American Dental Association.

The members of the American Dental Association committee are the president of the American Dental Association, Dr. Mead; the general secretary of the American Dental Association, Harold Hillenbrand; J. B. Carr, Indianapolis, trustee of the American Dental Association from the seventh district; Benjamin Rosenwasser, Union City, N. J., and Dudley R. Isom, Shreveport, La.

The members of the liaison committee of the American Dental Assistants Association appointed to work with the American Dental Association committee are Margaret C. Sharp, president, Jasonville, Ind.; Aileen M. Ferguson, secretary, Jamaica Plain, Mass.; Helen H. Fitting, Philadelphia; Katie McConnell, Atlanta, Ga., and Melva Russler, St. Louis.

ARMY INSTITUTE SEEKS FELLOW IN DENTAL AND ORAL PATHOLOGY

A fellowship in dental and oral pathology has been established by the American Dental Association in connection with the American Registry of Pathology at the Army Institute of Pathology, Army Medical Museum, Washington, D. C.

The fellowship is open to graduates of recognized dental schools. Appointments will be made for a one year period and will be subject to renewal. The fellowship is designed to afford advanced training in dental and oral pathology to dental graduates who wish to equip themselves for teaching or for work in a research institution. Preference will be given to applicants who have previous training in general pathology.

Application should be made by letter to The Director, Army Institute of Pathology, Army Medical Museum, Seventh and Independence, S. W., Washington 25, D. C.

BOSTON HOTEL RESERVATIONS SHOULD BE MADE IMMEDIATELY

Hotel reservations for the eighty-eighth annual meeting of the American Dental Association, to be held August 4-8 in Boston, should be made immediately through the Housing Bureau of the Boston Chamber of Commerce.

The critical hotel situation in Boston makes it imperative that requests for rooms be filed as early as possible, although every effort will be made to accommodate all members of the American Dental Association planning to attend the meeting.

Application blanks to be used for reservations will be found on pages A22 and A23 of this issue of THE JOURNAL. The blanks are accompanied by instructions for filling them out and sending them in and by a list of available Boston hotels and their scales of rates. Additional copies of the application blank may be secured from the Housing Bureau, 80 Federal St., Boston 10.

Reservations will be accepted only by the Housing Bureau and not by the central office in Chicago or by the Committee on Local Arrangements in Boston.

All reservations will be subject to confirmation by the holder by July 15. Forms for this purpose will be sent to reservation holders about June 15. Failure to confirm reservations by July 15 may result in their cancellation, at the option of the Housing Bureau.

It is expected that most of the official delegates can be accommodated at the Statler Hotel, headquarters hotel for the meeting. The sessions of the House of Delegates will be held in the Statler Hotel, and the scientific sessions will be held in Mechanics Hall.

A.D.A. REPRESENTATIVES ATTEND NATIONAL UNESCO CONFERENCE

Two representatives of the American Dental Association attended a national conference on the United Nations Educational, Scientific and Cultural Organization held recently in Philadelphia.

The representatives, Daniel F. Lynch, chairman of the Committee on International Relations, and LeRoy M. Ennis, trustee of the American Dental Association from the third district, were appointed by Sterling V. Mead, president of the American Dental Association, at the invitation of Milton S. Eisenhower, chairman of the United States National Commission for UNESCO.

NEW ATLAS OF DENTAL AND ORAL PATHOLOGY TO BE PUBLISHED

Lt. Col. Joseph L. Bernier, secretary of the Committee on National Museum and Dental Registry of the American Dental Association, has announced that the fourth edition of the *Atlas of Dental and Oral Pathology* will be published around September 1.

The new edition of the Atlas, prepared at the Army Institute of Pathology of the Army Medical Museum, is being completely revised with a new format and with considerably more text than appeared in previous editions, Colonel Bernier said.

NEW FILM ON DENTAL HEALTH AVAILABLE FOR GRADE SCHOOLS

A new film strip designed for use in elementary schools, "Your Health and Your Teeth," has been prepared by the American Dental Association and manufactured by the Society for Visual Education.

The film has a showing time of twenty minutes and reaches the sixth grade level in vocabulary. The children used in the film are of the same age level as the children for whom the strip is designed. Although the film has no story sequence, it follows a daily health routine and stresses three points in dental health education. The points are: a visit to the dentist every six months, or as often as he advises; adequate diet, with emphasis on a minimum of highly refined sugars, and daily oral hygiene.

The script, photographs and art work, prepared under the direction of Glenna Walter, health education consultant for the American Dental Association, were approved by the Bureau of Public Relations, the Council on Dental Therapeutics and the Council on Dental Health.

The film may be purchased for $2 from the Society for Visual Education, 100 East Ohio St., Chicago.

DENTAL CLIPSHEET PROVIDED BY PRESS RELATIONS BUREAU

The Bureau of Press Relations of the American Dental Association is now providing a clipsheet service to approximately five hundred industrial magazines and house organs.

The clipsheet will be issued every two months and will consist of short stories, dental briefs and cartoons printed on slick paper and suitable for reproduction.

The clipsheet will be supplied on request to the Bureau of Press Relations, American Dental Association, 222 East Superior St., Chicago 11.

Official U.S. Navy Photo

Marquette Professor Cited

O. M. Dresen, professor of dental prosthesis, Dental School, Marquette University, Milwaukee, left, is shown receiving a certificate of appreciation from Capt. Merrill Comstock, deputy commandant and chief of staff, Ninth Naval District, Great Lakes, Ill., for his service in instructing naval dental officers in prosthetic technic during the war

ARMY AND NAVY

NEW DISTRICT DENTAL OFFICER TRANSFERRED TO GREAT LAKES

Capt. Walter P. Caruthers, U. S. Navy Dental Corps, has been ordered to relieve Capt. Robert P. Irons, U. S. Navy Dental Corps, as district dental officer at the Ninth Naval District Headquarters, Great Lakes, Ill., according to an announcement from the district headquarters.

Captain Irons has been ordered to report for duty as dental officer on the staff of the commander, service forces, Pacific Fleet. Captain Caruthers was previously on duty at the Receiving Station, U. S. Naval Station, San Diego, Calif.

NAVY DEPARTMENT DENTAL OFFICES ARE CONSOLIDATED

The Bureau of Medicine and Surgery, U. S. Navy Department, has announced the consolidation of the office of the As-

sistant Chief of the Bureau for Dentistry and that of Chief of the Dental Division.

Rear Admiral A. G. Lyle, former Assistant Chief of the Bureau for Dentistry, has been assigned the duties of the newly established Office of General Inspector, Dental Service of the Naval Establishment. This office includes the U. S. Marine Corps.

Rear Admiral A. W. Chandler, Chief of the Dental Division, has taken over the additional duties of Assistant Chief of the Bureau for Dentistry.

DENTAL EDUCATION

LOYOLA ALUMNI HOLD ANNUAL HOMECOMING CLINIC, BANQUET

The Alumni Association of the School of Dentistry, Chicago College of Dental Surgery, Loyola University, recently held its sixty-fourth annual homecoming clinic and banquet.

Speakers included Harry Sicher, professor of anatomy and histology; John R. Thompson, Chicago; Gustav W. Rapp, head of the departments of chemistry and physiology; Cedric K. Dittmer, Chicago; Robert G. Kesel, Chicago, and Nathan Potkin, Chicago.

ILLINOIS ALUMNI TO CREATE MEMORIAL TO F. B. MOOREHEAD

The Alumni Association of the College of Dentistry, University of Illinois, has appointed a committee to plan a suitable memorial to the late Frederick B. Moorehead, former dean of the College of Dentistry.

The committee has announced that the type of memorial to be created will depend on the contributions to the memorial fund. Members of the committee are Edward J. Ryan, Evanston, Ill., chairman; Stanley D. Tylman, Chicago, co-chairman; Robert G. Kesel, Chicago, secretary, and Robert I. Humphrey, Chicago, treasurer.

Contributions should be sent to Robert I. Humphrey, Moorehead Memorial Committee, 185 North Wabash Ave., Chicago.

FUNDS APPROPRIATED FOR WASHINGTON DENTAL SCHOOL

The Washington State Legislature has passed bills appropriating approximately $5,501,357 for the Schools of Medicine and Dentistry at the University of Washington.

A sum of $3,250,000 was reappropriated as the balance in the medical-dental school fund appropriated in 1945. The funds will be used to complete the School of Dentistry building, first unit of the new Medical and Dental Building. A total of $2,251,357 was appropriated for salaries, wages and operations for the Schools of Medicine and Dentistry for the next two years.

S. A. PETERSON SPEAKS AT DENTAL FRATERNITY MEETING

Shailer A. Peterson, director of educational measurements for the Council on Dental Education of the American Dental Association, spoke recently on "Who Should Enter Dentistry?" at the quarterly session of the Chicago auxiliary of Delta Sigma Delta Fraternity.

Dr. Peterson discussed the aptitude testing program of the American Dental Association in relation to success in dental schools. He said that it is easier to predict whether a student will pass or fail than to predict his grade average and that it is easier to predict for an entire group than for an individual.

He pointed out that vocational counseling services usually determine the student's general intelligence level, his special abilities and his interests and ambitions. All three factors must be taken into consideration by a dentist who is

asked for advice by a prospective dental student.

"A large proportion of the freshman students now entering dentistry come from a highly select group of college and university students," he said. "Dentistry should be very proud of the caliber of students who are now being enrolled, for this means the maintenance of high standards in the dental profession."

Dr. Peterson said that, until the start of the aptitude testing program, no information was available as to the levels of ability necessary for success in dental school or even of the level of abilities represented by students now enrolled in dental schools.

PUBLIC HEALTH

MAYNARD K. HINE NAMED TO INDIANA STATE HEALTH BOARD

Maynard K. Hine, dean, School of Dentistry, Indiana University, has been appointed a member of the Indiana State Board of Health by Gov. Ralph F. Gates of Indiana.

The nine-member board of health will put into effect an extensive public health program approved at the recent biennial session of the Indiana General Assembly.

CIVIL SERVICE DENTIST'S POST NOW OPEN IN LOS ANGELES COUNTY

The Los Angeles County Civil Service Commission has announced that it has an opening for the position of senior dentist in the department of charities. The deadline for filing applications for the post is midnight, May 17.

The duties of the senior dentist will include professional and oral surgical care to patients in county institutions and supervision of the work of dental interns and laboratory technicians. The dentist must be not more than 55 years of age.

No written examination will be held. Applicants will be rated on their training, experience and personal suitability. Blanks may be secured at the office of the Los Angeles County Civil Service Commission, 102 Hall of Records, Los Angeles 12.

MEDICAL RESEARCH GRANTS RECOMMENDED FOR APPROVAL

Medical research grants amounting to more than $2,000,000 have been recommended by the National Advisory Health Council for the approval of Thomas Parran, Surgeon General, U. S. Public Health Service, according to an announcement by the Federal Security Agency.

All the grants are contingent upon appropriations by Congress for the fiscal year of 1948, which starts July 1, 1947.

A number of the grants were made for dental research. These include $2,916, University of Indiana, investigator, Ralph W. Phillips; $4,824, University of Indiana, investigator, Grant Van Huysen; $2,160, Harvard University, investigator, James H. Shaw; $2,600, College of Physicians and Surgeons, California, investigator, Henry M. Leicester; $7,800, College of Physicians and Surgeons, California, investigator, Henry J. Ralston; $3,500, University of Illinois, investigator, Allan G. Brodie; $8,250, Northwestern University, investigator, L. S. Fosdick; $5,340, Meharry Medical College, Texas, investigator, Harold D. West, and $3,996, University of Texas, investigator, Floyd A. Payton.

BILL FOR U. S. PARTICIPATION IN W.H.O. INTRODUCED IN CONGRESS

Walter H. Judd of Minnesota has introduced H. J. Res. 161 into the House of Representatives. The bill provides for membership and participation by the United States in the World Health Organization.

Under the bill the President would be authorized to select three delegates of the United States to attend specified sessions of the World Health Assembly.

A similar bill, S. J. Res. 98, has been introduced into the Senate. The constitution for the World Health Organization was adopted July 22, 1946, in New York by the International Health Conference for the Establishment of an International Health Organization.

PUBLIC HEALTH ASSOCIATION TO HOLD MEETING OCTOBER 6

The seventy-fifth annual meeting of the American Public Health Association will be held in Atlantic City, N. J., the week of October 6. Details of the program will be announced later in the year, according to Reginald M. Atwater, executive secretary.

GENERAL NEWS

OLIN WEST RESIGNS POST AS A.M.A. PRESIDENT-ELECT

The board of trustees of the American Medical Association has announced the resignation of Olin West, Nashville, Tenn., as president-elect of the American Medical Association because of ill health.

Edward L. Bortz, Philadelphia, who was elected vice-president of the association at the June 1946 meeting in San Francisco, will succeed Dr. West as president-elect and will be inaugurated as president at the annual session to be held June 9-13 in Atlantic City, N. J.

A.H.A. CONDUCTS STUDENT NURSE RECRUITING PROGRAM

The board of trustees of the American Hospital Association has initiated a nation-wide program for recruiting of student nurses in order to secure at least 45,000 students for the 1,300 nursing schools in the country in 1947.

The association voted to spend $10,000 toward financing the campaign and also requested nursing schools to contribute to its cost. A survey conducted by the association showed that on February 15, 1947, approximately 33,572 hospital beds in the United States were closed, chiefly because of the shortage of nurses.

John H. Hayes, president of the American Hospital Association, has also announced that hospitals are reporting increasing waiting lists for admission.

DENTAL SOCIETIES

CANADIAN DENTAL ASSOCIATION TO HOLD MEETING JUNE 24-27

The National Convention of the Canadian Dental Association will be held June 24-27 in Digby, Nova Scotia, Canada.

Essayists on the program will include Max Jacobs, Tufts College Dental School; Basil G. Bibby, dean, Tufts College Dental School, and Paul K. Losch, Harvard School of Dental Medicine. Don W. Gullett, Toronto, Canada, is secretary of the Canadian Dental Association.

Among other dental meetings to be held shortly in Canada is a joint convention of the Western Canada Dental Society and the British Columbia Dental Association at the Banff Springs Hotel, Alberta, Canada, June 13-15.

The program committee has announced the following speakers for the meeting: William R. Eberle, Chicago; Reed O. Dingman, Ann Arbor, Mich., and John Kuratli, Portland, Ore. The Western Canada Dental Nurses and Assistants Association will hold its annual convention in connection with the meeting of the Western Canada Dental Society.

REPORTS OF

COUNCILS AND COMMITTEES

COUNCIL ON DENTAL THERAPEUTICS REPORTS ON TOPICAL APPLICATION OF FLUORIDES

At its annual meeting, held in Chicago on March 7 and 8, 1947, the Council on Dental Therapeutics adopted the following statement with regard to topical application of fluorides for prevention of dental caries:

The evidence is convincing that fluoride solutions properly applied to the teeth are capable of a limited inhibiting effect on tooth decay in children considered collectively. However, the method is associated with many unknown factors, among them being the optimum frequency of administration, optimum strength of solution, local conditions for maximum adsorption and the mode of action by which fluorine so applied exerts its influence. Despite these shortcomings, it appears to offer a way to reduce the incidence of caries significantly with relative safety in a highly susceptible population and is deserving of attention as a public health measure of potential importance. Although the optimum concentration of fluorine is not known, most of the available evidence is associated with multiple application of 2 per cent aqueous sodium fluoride solutions preceded by oral prophylaxis.

The Council reaffirmed its previously expressed opinion that evidence adequate to justify the administration of fluorides in other oral pharmaceutical dosage forms or by inclusion in dentifrices or mouthwashes is lacking.

COUNCIL DISCUSSES PRESENT STATUS OF SULFATHIAZOLE GUM

White's Sulfathiazole Gum, manufactured and distributed by White Laboratories, Inc., Newark, N. J., has been under consideration by the Council on Dental Therapeutics for some time. During this time a report on the product has been withheld because the data available for evaluating its dental uses were inadequate. Several factors remain to be clarified regarding this product, and it is not accepted by the Council on Dental Therapeutics. Since the product is being actively promoted to the dental profession, the following report has been authorized by the Council in order that the profession may have the most accurate information available concerning the value and the limitations of sulfathiazole gum.

White's Sulfathiazole Gum is made in tablets which are stated to contain 0.25 gm. (3.75 grains) of U.S.P. sulfathiazole. The gum base is said to conform with standards for "masticatory substances" of the Food and Drug Administration. The therapeutic indications are said to be the

prevention and treatment of sulfonamide-susceptible infections of the oral mucosa and contiguous tissues, including primary infections as well as infections that are secondary to oral surgical procedures. One of the principal dental uses suggested in the advertising is in the treatment of oral Vincent's infection.

Convincing data have been presented to the Council indicating that the dissolved sulfathiazole content of the saliva rapidly reaches and remains in a range which theoretically should be effective against sulfonamide-susceptible organisms. This salivary level varies greatly in different persons, ranging from 20 mg. per cent to 120 mg. per cent with the average based on three separate investigations ranging between 40 and 70 mg. per cent. Furthermore, some fairly satisfactory data recently have been received indicating an over-all reduction in oral bacterial flora when sulfathiazole gum is chewed as compared with results after control chewing of nonmedicated gum.

The fact that there is a theoretically effective salivary level of sulfathiazole and a general reduction in bacterial count does not necessarily mean that the product is an effective therapeutic agent for dental infections. In the case of Vincent's infection, for which this product is widely advertised, it does not necessarily follow that because the saliva contains an average of 40 mg. per cent there will be an effective level in a deeply eroding interproximal crater. Furthermore, every clinician is well aware of the fact that there is extensive necrotic tissue and debris in such an area and that the effectiveness of sulfonamides is inhibited markedly by p-amino-benzoic acid which may be present in such areas. One series of 48 patients with acute Vincent's stomatitis treated with sulfathiazole chewing gum alone has been reported to the Council. All but 1 patient were reported to have responded to this treatment with the treatment time ranging from three to fourteen days. Patients were considered clinically cured when "inflammation in the gingivae had subsided, the temperature returned to normal and the smears showed an absence or only an occasional Plaut-Vincent organism." The average treatment time for the 48 patients was 5.3 days.

On the surface this report appears encouraging, but it should be pointed out that no control series was run, and one wonders what might have happened in a similar series in which nonmedicated gum was used or in which manipulative procedures alone were used. Furthermore, it seems pertinent to compare these results with similar series in which penicillin was used. A few typical reports follow. Thexton and Dick,[1] reporting on the treatment of Vincent's stomatitis with penicillin packs, state that in their series of cases all patients became asymptomatic in twenty-four hours, sloughs separated in thirty-six to forty-three hours, and in four to five days ulcers were epithelializing and fusospirochetal organisms had disappeared from microscopic slides. MacGregor and Long,[2] reporting on 75 patients with Vincent's stomatitis who were treated with penicillin pastilles, state that all patients became asymptomatic in twenty-four hours, sloughs and signs of acute inflammation in the gums disappeared within forty-eight hours and in no instance was treatment necessary after forty-eight hours. Strock,[3] reporting on 202 patients with acute ulcerative gingivostomatitis who were treated with penicillin applied in several ways, states that within twenty-four hours the clinical picture changed objectively and pseudomembrane either was absent or could be removed with a gentle flow of air and without bleeding. In forty-eight to

1. Thexton, R., and Dick, P. K., Penicillin Packs in the Treatment of Vincent's Infection. *Brit. D. J.* 78:292 (May 18) 1945.

2. MacGregor, A. B., and Long, D. A., Penicillin Pastilles in the Treatment of Acute Ulcerative Gingivo-Stomatitis (Vincent's Type). *Brit. D. J.* 78:33 (January 19) 1945.

3. Strock, A. E., The Treatment of Acute Ulcerative Gingivo-Stomatitis with Penicillin. *New York J. Den.* 15:263 (October) 1945.

seventy-two hours normal color, tone and stippling returned to the affected tissues.

These reports are typical of the many which have been published recently on the treatment of Vincent's stomatitis with penicillin. Although they do not prove penicillin to be superior to sulfathiazole gum for this purpose, the fact remains that nearly all such reports give results equal to or superior to those reported to the Council for sulfathiazole gum. This fact, coupled with the known potential hazard of sulfathiazole sensitization, leads the Council to the belief that the use of sulfathiazole gum has not been proved to be an optimum adjunctive method of treating Vincent's stomatitis. It is significant that practically all investigators agree that the use of any drug in the treatment of Vincent's infection should be considered only as a supplement to the usual manipulative and operative procedures.

Sulfathiazole gum is also widely advertised for use in the prevention or control of infections after oral surgical operations. The available data supporting this use are still less conclusive than in the case of Vincent's stomatitis. It is well known that sulfonamides do not readily penetrate through blood clots and are relatively ineffective in the presence of pus, exudates or necrotic tissue, thus making the presence of sulfathiazole in the saliva theoretically of questionable value except in surface infections. One preliminary report by Fox and others[4] indicates that sulfathiazole gum may have value in shortening the course of certain types of pharyngitis and tonsillitis. Another preliminary report by McGovern[5] indicates that the routine use of sulfathiazole gum may lessen the incidence of secondary hemorrhage after tonsillectomy and improve the healing of the pharyngeal wound. However, these conditions are different from those encountered after oral surgical procedures, and therefore similar results are not necessarily to be anticipated. It is the understanding of the Council that a study of the effects of sulfathiazole gum after oral surgical procedures is now under way at one of the dental schools, but until satisfactory data appear the Council feels that its use for this purpose is of only presumptive value.

The Council has been concerned about the safety of this product because of the possibility of its producing sensitization to sulfathiazole or of its producing reactions in the previously sensitized person. In two reports submitted to the Council on the extensive use of sulfathiazole gum, no unfavorable reactions are mentioned. Neiman, of the Chicago Medical School, ran a study on a group of 124 students to whom sulfathiazole gum was given experimentally as a means of preventing infectious pharyngitis. He states that there were no untoward reactions in this group even though some of them received the preparation for six months. At the end of the study, 20 of the students were tested for sensitivity to sulfathiazole by the Leftwich technic.[6] This test was positive in only 1 case, and this person gave a history of a reaction to the sulfonamides prior to the use of sulfathiazole gum. Noah Fox, Department of Laryngology, Rhinology and Otology, College of Medicine, University of Illinois, reported that in the treatment of an estimated 300 patients with sulfathiazole gum there were no significant untoward reactions. On the other hand, the Council referee is familiar with one case in which a severe dermal reaction occurred when a sulfathiazole ointment was applied shortly after the treatment of a throat condition with sulfathiazole gum.

It would appear from the reports of Fox and Neiman that the incidence of

4. Fox, N. H.; Kesel, R. G.; Neary, E. R., and Herbine, R. H., Effect of Sulfathiazole Chewing Gum in Certain Oropharyngeal Infections. *Arch. Otolaryng.* 41:278 (April) 1945.

5. McGovern, F. H., Prevention of Secondary Post-Tonsillectomy Hemorrhage with Sulfathiazole Gum. *Arch. Otolaryng.* 40:196 (September) 1944.

6. Leftwich, W. B., Intradermal Test for Recognition of Hypersensitivity of Sulfonamide Drugs. *Bull. Johns Hopkins Hosp.* 74:26, 1944.

sensitization from sulfathiazole gum is not high. If this preparation were an essential agent for the treatment of dental infections, the risk of sulfonamide reactions might be justified. However, the evidence is not yet at hand to prove that sulfathiazole gum is superior to other methods of treatment which do not have the potential hazard of serious sensitization reactions, and consequently the Council has found this product unacceptable for Accepted Dental Remedies.

Further studies of the value and safety of sulfathiazole gum in dentistry are now under way and will be considered carefully by the Council upon their completion. In the event that the results should justify revision of the Council's attitude toward this product, it will be so reported in the Council's section of THE JOURNAL.

NEUTROX FOUND NOT ACCEPTABLE BY COUNCIL ON DENTAL THERAPEUTICS

THE Vick Chemical Company, distributor of Neutrox, states that the composition of Neutrox is as follows: sodium perborate monohydrate (U.S.P. dehydrated), 30 per cent; monocalcium phosphate, 30 per cent; tricalcium phosphate, 23.87 per cent; magnesium carbonate, 10 per cent; saccharin soluble, 0.3 per cent; sodium chloride, 2 per cent; menthol, 0.33 per cent; oil of peppermint, 0.5 per cent; methyl salicylate, 0.65 per cent; oil of anise, 0.042 per cent; liquid petrolatum, light, 1.81 per cent, and sodium lauryl sulfoacetate, 0.5 per cent.

The firm has agreed to keep the Council on Dental Therapeutics informed of all changes in the composition of Neutrox. Neutrox is covered by U. S. Patent 2,094,671 and U. S. Trade-Mark 355,919.

Neutrox is a mixture of sodium perborate monohydrate and acid calcium phosphate together with ingredients usually found in dentifrices. Magnesium carbonate and tricalcium phosphate are apparently included for their abrasive cleansing effect.

Neutrox currently is advertised only to dentists. Following are some of the claims made for the product: "It is a *new* and *more efficacious* way to treat gingival infections." "It supplements your office treatments." "It is evidence of your own specialized knowledge." "It promotes better patient cooperation." "Safe oxygen therapy for daily home use . . . absolutely no burn."

These statements appear to encourage prolonged daily home use of a dentifrice which contains an oxidizing agent. The Council does not accept such agents because it does not have evidence to show that their use is warranted or beneficial or that they are entirely free from irritating effects.

Neutrox is unacceptable for Accepted Dental Remedies because therapeutic claims for the product are not adequately supported by scientific evidence which is available to the Council, and daily use of a dentifrice which contains a strong oxidizing agent does not appear to be warranted or desirable.

As a matter of general policy, all decisions of the Council are subject to revision in the light of new scientific evidence.

The Council has authorized publication of this report.

CASES AND COMMENTS

"General Anesthesia in the Control of Pain in Dentistry"

To the Editor: After a conference with members of the faculty of the College of Dentistry, Ohio State University, I was instructed to write you concerning an article which appeared in the December 1 issue of THE JOURNAL, entitled "General Anesthesia in the Control of Pain in Dentistry" by Sidney C. Wiggin, M.D., professor of anesthesia, Tufts College Medical School, Boston. It is unfortunate that this paper should appear in a number so largely devoted to Dr. Morton. There are certain statements in it which, because of their inaccuracies, we believe should not be published in any authoritative dental journal. THE JOURNAL is held in such high repute that it is extremely unfortunate that the inaccuracies in this presentation, by a physician, should have been published in it.

The author's history of the early use of anesthetic agents does not correspond to that given by Harry Archer, of Pittsburgh, who has become known as an expert on the history of general anesthesia. However, the history of anesthesia has always been a controversial subject, and Dr. Wiggin is entitled to expression of his opinion.

On page 1566, Dr. Wiggin states: "Since World War I, dentists have developed the specialty of oral surgery which, together with dentistry, calls for the same care of the patient in the control of pain as other surgical procedures." Some of our more prominent men of today, and some others who have died, pioneered in the field of oral surgery long before World War I. I might mention, especially, the late George Winter as the father of exodontia, and many other dentists who developed universally applied technics of anesthesia could be named. These pioneers deserve much gratitude.

On the same page, the author states: "All surgical operations on the oral cavity should be performed with the patient in the Trendelenburg position, to facilitate the gravitation of secretions from the mouth and to prevent aspiration into the respiratory tract." The Trendelenburg position places the patient on the back on a plane inclined 45 degrees with the legs and feet hanging over the end of the table. The patient's head is considerably lower than the knees. I, as a dentist, cannot conceive the importance of placing the patient in the Trendelenburg position, and I doubt if the author has ever seen a dental patient in this position.

On page 1567, Dr. Wiggin says: "The administration of the general anesthetic agent, with its many complications of induction, maintenance and postoperative results, should not be carried out in a dental office. If a patient has an oral condition necessitating a general anesthetic, he should be hospitalized. The exception is the administration of nitrous oxide-oxygen in combination with regional procaine hydrochloride by a trained anesthetist or dentist."

Recurrently during the past twenty-five years physicians or men with both a D.D.S. and an M.D. degree have suggested that general anesthesia be developed solely as a postgraduate course in dental schools. Four years ago, at a meeting of the American Association of Dental Schools, through the efforts of Dr. Archer and others this idea was rejected and its application postponed. We do not expect a revival of this movement in the A.A.D.S. for some time. General anesthetics are given by dentists in more and more cases when local anesthetics are contraindicated. In view of this, Dr. Wiggin's exception to permit the use of a general anesthetic in the office only when a local anesthetic is used in conjunction with it appears ill-advised.

Again quoting from Dr. Wiggin: "Nitrous oxide-oxygen is a weak gas with a narrow margin of oxygenation. For this reason, without sufficient preoperative sedation, it is almost impossible to maintain sufficient anesthesia for even the simplest extraction without endangering the life of the patient or creating an uncontrollable situation. Consequently, when the patient is not well medicated, which is the usual situation in outpatient dental clinics, the nitrous oxide-oxygen should be reinforced with Vinethene."

This statement appears to be inaccurate. Last spring, some uninformed person introduced a plan to prohibit dentists from giving anesthetics, and I was called upon to give certain data from my own office and from the College of Dentistry of Ohio State University.

I stated that during the preceding five-year period at my own office I had administered 21,000 general anesthetics, in which duration of the anesthesia ranged from five minutes to forty-five minutes. At the College of Dentistry, 7,900 general anesthetics had been given during that time, and the records indicate that in no case was administration of a general anesthetic a contributing factor to the death of the patient. It would appear that the author does not have sufficient experience to make the statement quoted above.

This criticism is presented in the hope that we may have better and more authentic information concerning general anesthesia published in THE JOURNAL. The value of teaching general anesthesia to undergraduate students in dental schools can be confirmed by the students themselves.—*D. P. Snyder, Professor of Dentistry, Ohio State University, Columbus 10.*

Painless Needle Insertions. By W. A. Ferguson, D.D.S., Mt. Pleasant, Texas.

Much has been written about the control of pain in dental operations, and manufacturers of anesthetic agents go to great expense to advertise the superiority of their products and the correct technics of administration. Control of pain has been so well established that patients are now expecting and demanding anesthesia for cavity preparations as well as for other operations. Now, with the use of anesthesia in dentistry, many patients say that, although they no longer mind having a tooth filled or extracted, they do dread the needle used to inject the anesthetic agent.

During the past eight years I have used a technic of needle insertion which has eliminated the apprehension of most of my patients concerning injection of the anesthetic agent.

Fig. 1.—Injection for infiltration anesthesia

Fig. 2.—Injection in hard palate

I use a 25 gage needle, which, needless to say, must be sharp. In injections for infiltration anesthesia, the oral mucosa is pushed high above the point at which the needle is to be inserted. The needle is then placed at the desired point of insertion at a 75 or 85 degree angle to the alveolar bone. While the syringe is held firmly and not moved, the tissue is pulled onto the needle with a quick motion, the forefinger and middle finger being used to pull up the lip or cheek (Fig. 1).

For injections in the hard palate, the site of injection is determined, the needle is placed at this point and, while the syringe is held firmly, the patient's head is pushed onto the needle with a quick movement of the operator's other hand (Fig. 2).

For regional anesthesia the same principle is used. The landmark for the site of the needle having been determined, pressure is applied, the forefinger being used to stretch the mucosa while the thumb supports the mandible. The needle is placed at the point of insertion, the syringe is held firmly and not moved, and with a quick motion the tissue is moved onto the needle (Fig. 3).

The syringe is never moved while it is at the

Fig. 3.—Injection for regional anesthesia

site of the injection and the needle is never stuck or pushed into the tissue. Instead the tissue is pulled onto the needle with a gentle and quick movement. I cannot explain why the patient experiences pain when the needle is pushed into the tissue but experiences no pain when the tissue is pulled onto the needle. —*818 North Jefferson Avenue.*

Direct-Indirect Method of Obtaining Inlay Patterns for Three Quarter or Full Crown Inlays. By Charles P. Shoemaker, D.D.S., Franklin, N.J.

The following technic for obtaining inlay patterns allows the operator to secure a wax pattern directly from the prepared tooth and retains the timesaving advantages of an indirect method.

The tooth is prepared in the customary manner, slice preparations being most satisfactory.

A loosely fitting copper band is carefully festooned to the gingival border. This band is removed, oiled on its inside surface, filled with softened inlay wax, replaced on the tooth and pressed into the correct position. After the wax is chilled, the band is not removed with the wax but is cut on the labial side with a carborundum wheel or stone and is peeled off in a manner similar to that used to remove a matrix from a finished filling. This procedure leaves the tooth covered with inlay wax. The wax is removed with a carver from any surface not to be included in the finished inlay, and this rough pattern is withdrawn. If this rough pattern cannot be removed easily, the preparation should be examined for undercuts. The undercuts should be removed and a satisfactory pattern secured.

For articulating purposes wax bite and small plaster impressions of the prepared tooth and the approximating teeth are taken. The tooth is protected by any desired method.

A stone model is carefully made from the wax pattern of the prepared tooth. It is built up by filling the pattern completely with a firm mix which will not run over the margins. A matchstick is inserted in the soft stone, and any excess amount spilling over the pattern margins is removed by wiping gently. The stone is allowed to set.

The wax pattern is removed from the model, and the model is articulated. The wax pattern is returned to the model, carved to the desired form, removed and cast.

In many instances the model need not be articulated. In fact, the wax impression need not be removed until all carving is completed and only then to check the thickness or any discrepancies prior to casting.

This technic has been most satisfactory. I believe the explanation for its success is that it eliminates the possible distorting action of a confining band. The wax, while it is being removed from the tooth, is not confined in any manner.—*113 Main Street.*

LIST OF DENTAL OFFICERS

SEPARATED FROM ARMY DENTAL CORPS

THE following list of dental officers separated from the Army Dental Corps does not include rank because such information is no longer furnished by the Surgeon General's Office. Publication will be given to other names as soon as possible.

California

Compton	Evans, Harry K.
Los Angeles	Katz, Gilbert T.
Manteca	Henry, Lloyd M.
Oroville	Pyke, Harry L.
Pasadena	Hasbrouck, Theodore F.
Santa Monica	Campbell, Robert K.

Florida

Jacksonville	Glickstein, Felix

Georgia

Decatur	Toomey, Joseph M.
Leesburg	Lee, Hugh E.
Rossville	Hawkins, Ralph A.

Illinois

Broadview	Gramke, Erwin M.
Chicago	Benedetto, Carl L.
Chicago	Domeikis, John A.
Chicago	Govostis, James C.
Chicago	Greenberg, Louis L.
Chicago	Gustavson, Herbert C.
Chicago	Harelik, Norman
Chicago	Henson, Kenneth J.
Chicago	Howard, Sanford S.
Chicago	Jacobson, Samuel H.
Chicago	Juliussen, Mitchell G.
Chicago	Pera, Alexander N.
Mattoon	Jaffe, Aaron A.
Melrose Park	Grunt, Arthur H.
Ridge Farm	Henderson, Hugh R.
Sesser	Jorden, Thomas W.
Sparta	Heitman, Harold H.
Sullivan	Holmes, Harold H.
Toledo	Gresens, Henry L.
Westmont	Haller, William F.

Indiana

Hartford City	Huff, Chester H.
Peru	Jones, Keith H.
South Bend	Grube, Roy D.

Massachusetts

Arlington	Hunt, Clifford G.
Boston	White, John A.
Lexington	Juthe, Randolph S.
Newton Center	Hannon, James R.
Northampton	Hankins, Orville L.
Waltham	Manning, John N.
Westfield	Jerz, Edward
Winchester	Hakanson, Ivar R.
Woburn	Glennon, Thomas J.
Worcester	Higgins, Lemuel W.

Michigan

Detroit	Hicks, James H.
Detroit	Jones, Kennard L.
Detroit	Stanifer, Ralph E.
Flint	Coggan, Mark E.
Flint	Hurwitz, Louis
Gobles	Ramsdell, Willard C.
Holland	Hoeksema, Walter
Marquette	Johnson, Gustave A.
Stambaugh	Harris, Leo H.

New Jersey

Atlantic City	Kleinman, Daniel
Camden	Mkitarian, Luther M.
Elizabeth	Schaffer, Meyer
Englewood	Worcester, George F., Jr.
Lodi	Hochheiser, Arthur M.
Newark	Balsam, Murray
Newark	Gildenberg, Boris
Newark	Gurvitz, Robert H.
Orange	Torlucci, Charles P.
Passaic	Gilbert, Irving
Passaic	Greenwald, Jules J.
Paterson	Blake, Fred S.
Plainfield	Hanigan, Dwight B.
Rahway	Hinman, Mallory
Red Bank	McKenna, Edward J.
Riverside	Orfe, James K.
Somerville	Rabin, Joseph H.
South River	Golden, Maxwell S.
Woodbine	Halpern, Harry L.

New York

Beacon	Goodwin, John L.
Bellmore	Glasser, John M.
Binghamton	Perna, Alfonso A.
Bronx	Gellis, Arthur
Bronx	Halperin, Victor
Bronx	Insler, Charles H.
Bronx	Japko, Maurice
Bronx	Martz, Hyman S.
Brooklyn	Feinberg, Harry
Brooklyn	Gerard, Raphael C.
Brooklyn	Gilman, Allen
Brooklyn	Gingold, Norman L.
Brooklyn	Ginsberg, Seymour B.
Brooklyn	Greenberg, Abraham
Brooklyn	Greenblatt, Norman
Brooklyn	Gruskin, Herman
Brooklyn	Gutcho, Sanford J.

Brooklyn	Healy, Tracy K.
Brooklyn	Hirschfeld, Gene W.
Brooklyn	Howard, Seymour J.
Brooklyn	Klatell, Jack S.
Brooklyn	Krull, Samuel
Brooklyn	Lipschutz, Benjamin
Brooklyn	Monat, Martin M.
Brooklyn	Montalbano, Casper J.
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Brooklyn	Seidenberg, Solomon S.
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Candor	Hamsher, Robert D.
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Glens Falls	Haynen, Arthur S.
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Kings	Seider, Emanuel
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Long Island	Godwin, Andrew C.
Long Island	Goldin, Jerome
Long Island	Hirsch, Murray W.
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Mt. Vernon	Goode, Walter L.
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New York	Jacobs, Alexander
New York	Joseph, Cecil L.
New York	Joseph, Simon
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New York	Massin, Murray A.
New York	Rubin, Marvin K.
New York	Senft, Sheldon H.
New York	Shaw, Herbert
New York	Yohai, Arthur N.
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Niagara Falls	Gwozdek, Walter T.
Queens	Hoffman, Herbert
Rochester	Cohen, Hubert J.
Rochester	Hoehn, Robert A.
Rockville Centre	Jaspin, Harry
Staten Island	Levowitz, Sidney S.
Syracuse	Denio, Howard I.
Syracuse	Hager, Robert E.
Syracuse	Rogers, Frederick K.
Utica	Gemza, Francis E.

Ohio

Akron	Heudorf, Robert R.
Akron	Hodges, James T.
Cleveland	Grossman, Mannie B.
Cleveland Hgts.	Samuels, John A.
Columbus	Jones, Lawrence J.
Columbus Grove	Hilty, Donald E.
Dayton	Gowdy, Robert E.
E. Liverpool	Irwin, Francis D.
Fairport Harbor	Kamenar, Andrew P.
Hicksville	Hartley, Vance W.
Lorain	Hoffer, George E.
New Carlisle	Gregory, Albert E.

Pennsylvania

Ambridge	Henry, Claude W.
Arnold	Marini, Delphin A.
Bellefonte	Jodon, Nevin C.
Benton	Ginter, Lewis W.
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Carnegie	Popivchak, Charles W.
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Huntingdon	Huston, Harry E.
Irwin	De Weese, James A.
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Stoughton	Gjertson, Chester A.

Wyoming

Cheyenne	Matsuyama, Harry T.

DEATHS

Neal, Willie B. R., Dallas, Texas; died March 3; aged 56.

Newman, Samuel W., Yonkers, N.Y.; New York College of Dentistry, 1916; died March 23; aged 53.

Obler, Harry G., Brooklyn; New York College of Dentistry, 1918; died March 21.

O'Connell, Paul B., Bayside, N.Y.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1938; died March 25; aged 34.

Ostrander, Harry M., Franklin, Mass.; Dental School, Harvard University, 1921; died March 30; aged 51.

Parker, J. Tyler, Sr., Los Angeles; Baltimore College of Dental Surgery, 1890; died March 22; aged 83.

Payne, J. R., Wichita, Kan.; Western Dental College, 1904; died March 11.

Plate, John B., Parkersburg, W. Va.; died in March, aged 76.

Pomeroy, Irving H., Sr., Gloucester, Mass.; New York College of Dentistry, 1891; died February 28; aged 76.

Raney, Joseph L., Webster Groves, Mo.; died March 10; aged 41.

Rideout, W. Ernest, Oakland, Calif.; College of Dentistry, University of California, 1914; died April 2; aged 57.

Rocke, Alfred E., Chicago; Chicago College of Dental Surgery, Dental Department of Loyola University, 1899; died April 11; aged 69.

Rose, Frederick M., Champaign, Ill.; College of Dental Surgery, University of Michigan, 1911; died March 30; aged 57.

Rose, Nathan C., Pleasant Ridge, Mich.; Detroit College of Medicine, 1901; died April 3; aged 72.

Rose, Robert A., Stamford, Conn.; Columbia College of Dental and Oral Surgery, 1910; died April 9; aged 60.

Rosenbaum, Charles T., Milwaukee; School of Dentistry, Marquette University, 1900; died March 1; aged 73.

Ryan, Charles G., Beverly, Mass.; died March 3; aged 52.

Sargent, Charles R., St. Paul; died March 28; aged 81.

Schlottmann, Edward L., Rochester, N.Y.; School of Dentistry, University of Buffalo, 1898; died March 18; aged 72.

Short, Donald E., Toledo, Ohio; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1914; died March 9; aged 56.

Skaggs, Calvin H., Hinton, W. Va.; School of Dentistry and the Baltimore College of Dental Surgery, University of Maryland, 1905; died March 15.

Smith, Ivan E., Miami, Fla.; died March 4; aged 56.

Smith, N. R., Santa Monica, Calif.; Western Dental College, 1896; died March 2; aged 73.

Smoots, J. W., Spearfish, S. Dak.; College of Dental Surgery, University of Michigan, 1899; died March 4; aged 69.

Stevens, Roy B., Waltham, Mass.; Dental School, Harvard University, 1915; died in February; aged 53.

Stevenson, Leslie M., Cold Spring, N. Y.; Pennsylvania College of Dental Surgery, 1904; died April 4; aged 66.

Stratton, Harry L., Sullivan, Ind.; Chicago College of Dental Surgery, Dental Department of Loyola University, 1907; died March 21; aged 61.

Stucke, Fred C., Bismarck, N. Dak.; College of Dentistry, University of Minnesota, 1914; died March 17; aged 55.

Thorson, Axel A., Rochester, Minn.; College of Dentistry, University of Minnesota, 1900; died March 29; aged 74.

Trippett, Vincent W. S., Princeton, Ind.; Louisville College of Dentistry, 1892; died March 7; aged 79.

Vandervort, H. Frank, Loveland, Ohio; Ohio College of Dental Surgery, Dental Department of the University of Cincinnati, 1892; died March 5; aged 77.

West, Walter O., Queens Village, N. Y.; died April 3; aged 81.

Wilson, Sidney C., Covington, Ky.; School of Dentistry, University of Louisville, 1901; died March 29; aged 69.

Womack, G. W., Coulterville, Ill.; School of Dentistry, Washington University, 1894; died March 21; aged 74.

Woodley, Frank E., Niagara Falls, N.Y.; Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania, 1901; died March 21.

Zellinger, Benjamin F., University City, Mo.; died March 5; aged 44.

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ANNOUNCEMENTS

MEETINGS OF STATE SOCIETIES

State	Date	Place	Secretary	Address
Alabama			G. W. Matthews	1922 Tenth Ave., S., Birmingham 5.
Arizona			B. K. Litt	68 E. Congress, Tucson
Arkansas	May 19–21	Little Rock	I. M. Sternberg	Merchants Bank Bldg., Ft. Smith
California			L. E. Linehan	450 Sutter St., San Francisco
S. California	Sept. 15–17	Los Angeles	M. E. Ralston	903 Crenshaw Blvd., Los Angeles 6
Colorado	May 25–28	Colorado Springs	R. A. Downs	724 Republic Bldg., Denver 2
Connecticut	June 3–5	New London	E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware			J. Krygier	309 S. State St., Dover
D. of Columbia	June 10	Washington	K. H. Wood	202-1835 Eye St., N. W., Washington
Florida	Nov. 10–12	St. Petersburg	J. I. Todd	433 St. James Bldg., Jacksonville
Georgia			J. M. Heard, Jr.	Persons Bldg., Macon
Hawaii	October	Honolulu	J. H. Dawe	P. O. Box 39, Honolulu 10
Idaho	June 9–11	Sun Valley	H. F. Miller	Moscow
Illinois	Oct. 9–11	Peoria	P. W. Clopper	623 Jefferson Bldg., Peoria 2
Indiana	May 19–21	Indianapolis	E. E. Ewbank	Kingman
Iowa			A. N. Humiston	417 Higley Bldg., Cedar Rapids
Kansas			F. A. Richmond	1008 Huron Bldg., Kansas City
Kentucky			J. L. Walker	640 Barbee Way, S., Louisville
Louisiana			J. S. Bernhard	407 Medical Arts Bldg., Shreveport
Maine	June 5–7	Poland Springs	A. H. Garcelon	State House, Augusta
Maryland			J. H. Shackelford	706 Baltimore Life Bldg., Baltimore 1
Massachusetts			P. E. Adams	106 Marlborough St., Boston
Michigan			F. Wertheimer	Michigan Department of Health, Lansing
Minnesota	Feb. 23–25, 1948	St. Paul	L. M. Cruttenden	Lowry Medical Arts Bldg., St. Paul
Mississippi	June 1–4	Biloxi	O. L. Colee	Magnolia
Missouri			C. W. Digges	Exchange National Bank Bldg., Columbia
Montana			C. S. Renouard	305 Phoenix Bldg., Butte
Nebraska			F. A. Pierson	Federal Securities Bldg., Lincoln
Nevada			L. G. Jacob	505 Chestnut St., Reno
New Hampshire	June 15–17	Portsmouth	F. E. Williams	814 Elm St., Manchester
New Jersey			J. G. Carr	407 Cooper St., Camden
New Mexico	May 26–28	Santa Fe	J. S. Eilar	First National Bank Bldg., Albuquerque
New York	May 13–16	Buffalo	C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina			C. W. Sanders	Benson
North Dakota			K. G. Allen	Fargo
Ohio	Nov. 9–12	Cleveland	E. G. Jones	185 E. State St., Columbus
Oklahoma			E. W. Wise	Medical Arts Bldg., Tulsa
Oregon	June 5–7	Portland	W. H. Hurley	922 Selling Bldg., Portland 5
Panama Canal Z.			T. W. Cagle	Box 243, Cocoli
Pennsylvania			E. R. Aston	421 Market St., Kingston
Philippine I.			G. A. Carreon	9 Broadway, Third St., N. Manila
Puerto Rico			R. Miranda	Box 747, Rio Piedras
Rhode Island			M. B. Messore	707 Union Trust Bldg., Providence
South Carolina			J. R. Owings	Greenville
South Dakota	May 29–31	Black Hills	E. W. Elmen	Sioux Falls
Tennessee			E. J. Justis	Exchange Bldg., Memphis
Texas			W. Ogle	313 Medical Arts Bldg., Dallas
Utah	June 5–7	Ogden	S. Ballinger	401 Medical Arts Bldg., Salt Lake City
Vermont	May 25–27	Woodstock	J. A. Larrow	Middlebury
Virginia			J. E. John	804 Medical Arts Bldg., Roanoke
Washington			F. J. Dingler	1502 Medical & Dental Bldg., Seattle 1
West Virginia	May 19–21	Bluefield	C. J. Gavelda	Clarksburg
Wisconsin			K. F. Crane	1233 Bankers Bldg., Milwaukee 2
Wyoming	June 19–21	Casper	J. D. McNiff	208 Grand Ave., Laramie

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	Place	Secretary	Address
Alabama	June 23–27	Birmingham	M. W. Gaillard	Merchants Bank Bldg., Mobile
Arizona	June 25–28	Phoenix	R. K. Trueblood	25 N. Second Ave., Glendale
Arkansas	June 23	Little Rock	H. E. Hanna	National Bank of Commerce Bldg., El Dorado
California	June 16 July 14	Los Angeles San Francisco	K. I. Nesbitt	515 Van Ness Ave., San Francisco 2
Colorado	June 15–19	Denver	E. G. Netherton	724 Republic Bldg., Denver 2
Connecticut	June 17–21	Hartford	C. G. Brooks	New London
Delaware	June 25–27	Wilmington	P. K. Musselman	Newark
D. of Columbia	June 9	Washington	H. A. Swanson	1726 Eye St., N. W., Washington
Florida	June 30–July 3	Jacksonville	A. W. Kellner	P. O. Box 155, Hollywood
Illinois	June 24–27	Chicago	W. A. McKee	503 Wood Bldg., Benton
Indiana	June 16–19	Indianapolis	C. A. Frech	Gary National Bank Bldg., Gary
Kansas	June 2–5	Kansas City, Mo.	G. L. Teall	Box 71, Hiawatha
Maryland	June 9–11	Baltimore	K. W. Preis	700 Cathedral St., Baltimore 1
Michigan	June 16	Detroit	J. L. Champagne	502 David Whitney Bldg., Detroit 26
Minnesota	June 16–21	Minneapolis	E. E. Comartin	334-100 First Avenue Bldg., Rochester
Mississippi	June 17–19	Jackson	W. R. Madden	Forest
Missouri	June 2–7 June 4–7	Kansas City St. Louis	R. R. Rhoades	Central Trust Bldg., Jefferson City
Nebraska	June 9–12	Omaha	C. A. Bumstead	924 Stuart Bldg., Lincoln
New Jersey	June 9–13		W. A. Wilson	150 E. State St., Trenton 8
North Carolina	June 23	Raleigh	F. O. Alford	Charlotte
North Dakota	July 6–11	Fargo	W. J. Ford	Fargo
Ohio	June 16–21 *	Cleveland	F. D. Lowry	79 E. State St., Columbus
Oregon	July 7–10	Portland	F. L. Utter	506 Pioneer Trust Bldg., Salem
Pennsylvania	June 23–28†	Philadelphia and Pittsburgh	R. E. V. Miller	Northampton National Bank Bldg., Easton
South Carolina	July 7	Columbia	E. G. Bumgardner	1517 Hampton St., Columbus 29
South Dakota	June 22–26	Sioux Falls	T. E. Burrington	Box 5, Rapid City
Tennessee	June 9–13	Memphis	J. J. Vaughn	1001 Medical Arts Bldg., Nashville
Utah	June 5–7	Ogden	S. W. Gallinger	1001 Tribune Telegram Bldg., Salt Lake City
Vermont	June 23–25	Montpelier	C. I. Taggart	139 Bank St., Burlington
Virginia	June 18–21	Richmond	J. M. Hughes	715 Medical Arts Bldg., Richmond
West Virginia	June 23–26	West Liberty	R. H. Davis	510 Goff Bldg., Clarksburg
Wisconsin	June 9–13	Milwaukee	S. F. Donovan	Tomah
Wyoming	June 23	Casper	O. R. Docekal	Sheridan

*Practical, June 16–18 (dental); June 17 (hygienists). Theory, June 19–21.

†Written, June 23–25 (dental); June 24–25 (hygienists). Clinical, June 26–28 (dental); June 26 (hygienists).

OTHER MEETINGS

Name	Date	City	Secy. or Chm.	Address
American Academy of Dental Medicine, First Annual Meeting	June 15	New York	S. Sorrin Program Chm.	745 Fifth Ave., New York 33
American Academy of Periodontology, Twenty-Ninth Annual Meeting	July 31–Aug. 2	Boston	C. E. Chamberlain Secy.	633 Jefferson Bldg., Peoria, Ill.
American Association of Dental Schools	June 23–25	Chicago	J. E. Buhler Secy.	School of Dentistry, Temple University, Philadelphia 30
American Board of Oral Surgery	July 29–30*	Boston	L. M. FitzGerald Secy.	718 Roshek Bldg., Dubuque, Iowa
American Dental Assistants Association	Aug. 4–7	Boston	A. M. Ferguson	709 Centre St., Jamaica Plain, Mass.
American Dental Association	Aug. 4–8	Boston	H. Hillenbrand Secy.	222 E. Superior St., Chicago
American Dental Hygienists' Association	Aug. 4–8	Boston	A. R. Fisk Secy.	1704 N. Troy St., Arlington, Va.
American Dental Society of Europe	Aug. 1948	London	K. C. Campbell Secy.	88 Portland Place, London, W. 1.

*Examinations for certification.

Name	Date	City	Secy. or Chm.	Address
American Medical Association, Centennial	June 9–13	Atlantic City, N. J.	G. F. Lull Secy.	535 N. Dearborn St., Chicago 10
American Society of Oral Surgeons, Twenty-Ninth Annual Meeting	July 30–Aug. 2	Boston	H. Bear Secy.	1112 E. Clay St., Richmond 19, Va.
National Dental Association, Thirty-Fourth Annual Meeting	Aug. 11–15	Detroit	J. A. Jackson Secy.	Box 197, Charlottesville, Va.
Canadian Dental Association, National Convention	June 24–27	Digby, Nova Scotia	D. W. Gullett Secy.	211 Huron St., Toronto
Ontario Dental Association, Eightieth Meeting	May 19–21	Toronto	H. R. Skilling Publicity Chm.	86 Bloor St., West Toronto 5, Ont., Canada
Northwest Conference in Dental Medicine	May 18–21	Harrison Hot Springs, B. C.	C. R. Hallman Secy.	4298 Dunbar St., Vancouver, B. C., Canada
British Dental Association, First Annual Peacetime Conference	June 16–21	Bournemouth	W. G. Senior Secy.	13 Hill St., Berkeley Square, London, W. 1, England
Conference on Prosthetic Dental Service	June 13-15	Chicago	C. O. Boucher Secy.	Ohio State University, Columbus 10
International Association of Dental Research	June 21–22	Chicago	E. H. Hatton Secy.	School of Dentistry, Northwestern University, 311 E. Chicago Ave., Chicago
Academy of Denture Prosthetics	July 28-Aug. 3	Boston	I. L. Furnas Secy.	928 Silverado St., La Jolla, Calif.
International Dental Congress, Tenth Annual Meeting	Aug. 4–8	Boston	C. F. L. Nord Secy.	The Hague, Holland
Medical Library Association, Forty-Sixth Annual Meeting	May 27–29	Cleveland	Ada L. Floyd Chm.	Cleveland Medical Library Association, 11000 Euclid Ave., Cleveland 6
Western Reserve Dental Alumni Association, Fifty-Fifth Reunion	June 9	Cleveland	H. G. Lamb Secy.	School of Dentistry, Western Reserve University, Cleveland 6
University of Pennsylvania, Dental Alumni Society	May 23	Philadelphia	Z. T. Jackaway Secy.	1506 E. Susquehanna Ave., Philadelphia 25
Wisconsin Dental Economic Study Club	Aug. 29–30	Madison	M. M. Tuttle Secy.	20 N. Carroll St., Madison 3

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Joseph Samuels Dental Clinic of the Rhode Island Hospital, Providence. Director, Ernest A. Charbonnel.

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